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Volume 24 June, 1934 Number 6

Organization of Adult Groups for Health Education*

MARY P. CONNOLLY, F.A.P.H.A.
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ALL Americans are "belongers," says George Bernard Shaw, as he pictures even the smallest hamlet with most of its citizens leaving offices, wash tubs, and ploughing to dash off to meetings. Mr. Shaw's opinion offers much encouragement to those who are new in the field of health education. It provides disappointment for those who accept it as a working plan for spreading health information.

Organized groups pave the way for many health advances. This is particularly true when the group sponsors a movement and continues to give it support. If large numbers of persons were affiliated with groups, the problem of disseminating health information through such groups would be simpler. However, a careful analysis of any given community will reveal that the rank and file of citizens do not hold continuous membership in any organization. Americans sample many new enterprises, but the turnover is such that it is a mistake to feel that we have influenced the community with a message if we have reached only the organized groups. Professional organizations, churches, and those carrying insurance benefits are the only ones that can claim fairly continuous membership.

I believe it is a mistake to assume that those who belong to organizations necessarily are leaders and will be forces in disseminating material given to them. Many persons join clubs or societies because their friends belong or because there appears to be a social advantage in such membership. Responsibility for the undertakings of a society is not always shared by all of its members. There is no doubt that we should include organized groups in any plan for community health education, but they should be only one unit. It is apparent that the bulk of the population which we must reach is not waiting and ready to receive us or our message.

If it is important that the newer knowledges of disease prevention and health education be presented just how shall we go about doing this job?

Every program which aims to change the behavior of individuals may well be built upon 3 separate steps: research, publicity, and direct contact. It is a foregone conclusion that those who deal with health education will not formu-

* Read before the Public Health Education Section of the American Public Health Association at the Sixty-second Annual Meeting in Indianapolis, Ind., October 10, 1933.

late a program without the benefit of research. In our early days, which were missionary in character, we put tremendous zeal into some programs for which we feel apologetic today. We believe we are doing better.

Publicity paves the way; but it does not do more than that. Adults change their habits only after discussion and deliberation. This is a protection because if we changed our habits as a result of the barrage of written and spoken material which descends upon us from radio and newspaper, we would be in a state of confusion confounded, from which we would derive neither health nor comfort. Publicity is important because it draws attention to subjects which need thought. Thinking does precede a rational change of habits in adults. Since most persons have not sufficient background for thinking through many problems in health behavior, they must have personal help in making their decisions.

Personal health advice should come from a physician who knows the individual, his capacities and tendencies. The physician who wishes to practise preventive medicine will have to assume this responsibility if large numbers of persons are to go to him to learn to keep well. It frequently requires much persuasion to convince a man that he needs to go to a physician when he is not ill. It is disappointing to the man when he does not receive advice with his health examination.

In addition to personal health advice it is important in this day of too close living that men and women shall learn something about disease communication and how they may safeguard themselves; something of the principles of sanitary science, if only for esthetic reasons; something about child care and behavior which will give their children a better chance. This intensive education must come from a person who has the time and training to present the material in a way in which it may be understood and from which profit will come to the student.

I believe the psychologists have convinced us that if we wish to gain anyone's attention we must start with a recognition of his interests. We can hope to do no better than to hitch our program to the van of interests which carries one's activities.

How shall we know a person's interests? How shall we go about gathering people into numbers which we can reach at a minimum of expense?

In answer to this first question, it is necessary that the person responsible for health education go about among many groups, even when the interests of the groups are not remotely connected with health promotion. This is the only means by which we can learn how the average person thinks and feels. When the timid looking little woman who sits next to you as a member of a group tells you of the health needs of young mothers in her neighborhood, and you can offer her a plan for intensive education for these mothers if she will bring them together, you have made group organization simple; and while your students are being brought together by the interested woman you can go on to claim the attention of other such leaders. The going about should be purposeful on the part of the health educator, in order that all classes will be met.

A study of the community should be made each year to enable the person responsible for the program to determine in which sections effort should be concentrated. If accurate records are kept this is not a difficult matter.

Large numbers of persons must learn to know those who provide health information and to know them well enough to include them in their programs. It may seem a waste of time to serve on a committee which desires to erect a monument to a famous citizen

or to abolish hideous sign boards; but in no other way is it so easy to gain the attention of those who influence public opinion.

This method of organization has a number of points to commend it. The person who asks for health education for a particular neighborhood assumes responsibility for the group. It is the plan of an individual who is proud of it and rarely fails to hold the group together. Each person who joins the group is visited and interested by one who is a neighbor. The education is something for which the group has asked and not a plan imposed upon them by a benevolent municipal or private organization.

Progressive women in churches form many interested groups on a basis of their particular needs. The leader of a cradle roll may ask for a series of lessons on infant care, while the superintendent of a Sunday School will invite parents of older children who wish to learn about communicable disease or child behavior.

Evening schools provide us with a means of incorporating health information in the course of study given to adults who wish to learn to read, write, speak English, or to finish elementary school. In addition to the regular evening classes, extension classes are frequently provided for groups of women unable to go to the regular schools. If the primary interest and need of the group is English, our health information becomes much more vital when it is incorporated in the driving need.

The unemployed who have had to wait for relief in public welfare stations have shown us how eager large numbers of men and women are to learn how to keep well. It is to be hoped that the opportunity for presenting health material to so many, who are ready and eager for it, will never again need to come in the same way. However, the public health organization that has planned a series of health talks for the large groups who wait in relief stations, and courses to suit the needs of smaller groups that will come together for this purpose, has relieved dispirited men and women of some hours of despair and given them a fund of information which will carry over into better days.

Particular attention should be paid to food budgets and meal planning, the early discovery of tuberculosis, and protection against communicable diseases when persons receiving relief are met. It is wise to distribute those who wish further information among groups not receiving relief in order that a more normal approach may be made to problems which the person finds difficult to solve at the time because of lack of money.

The health educator who is a member of the local board of the Girl Scouts, the Camp Fire Girls, the Boy Scouts, or similar organizations has not only an opportunity for providing a health program for the organization, but through contact with parents and leaders may extend group instruction to adults who would not be contacted in any other way. A particularly successful form of group organization is attained when the program is shared with a psychologist or a recreation leader. Units of study, of which health is one, provide sufficient variety to hold the interest of the group. Here, too, the women are brought together by a friendly person who becomes a member of the class.

In any plan for community education for health it must be remembered that intensive education can be given to a relatively small number of persons. These persons must be made to feel that because of their additional knowledge they have a responsibility for spreading this knowledge to others who are not so well equipped.

Small groups like to feel that they

are a part of a larger movement—that they walk with many. Health guilds serve the purpose of binding groups together and provide a concerted effort in all parts of the city. The guilds are composed of women who have completed a course in health instruction. They meet at regular intervals of 1 or 2 months. A representative from the department of health presents a particular problem to the guild at the meeting, and the members assume responsibility for solving it among their immediate neighbors. This provides a continuation of interest in health matters and a channel for keeping large numbers of persons informed regarding new advances made in public health.

Information given to groups should lead to action. Communities may well expect that those who have received intensive education for health will be interested in seeing that the children of the neighborhood are vaccinated and protected against diphtheria, and that efforts will be made to direct those needing medical care to the regular place for receiving it. The organization providing the education will have the benefit of numbers of persons furthering its program in addition to its regular staff.

Marked differences can be seen in the health behavior of Negroes when large numbers of this race have been reached with specific health instruction. One guild composed of less than 400 women was responsible for the immunization of more than 9,000 Negro children under the age of 5 years. There was a distinct feeling of pride among these women for having been responsible for their own race. Through the efforts of these same women and a group of progressive Negro physicians, it is expected that at least 2,000 Negroes over 15 years of age will be given an X-ray of the chest this month, in an effort to eradicate tuberculosis among their people.

Race prejudices and inter-race enmities can destroy group interest. Race prejudices are avoided when groups come together because of mutual interests. Because a neighborhood is largely foreign born does not mean that all of its residents will see eye to eye on any given subject. Even within racial groups, habits and customs are so different that agreement on few subjects can be reached. If the family sympathies are with monarchists, the mother will not be likely to join with a neighbor whose homeland sympathies are liberal, even to learn how to care for her baby.

Stereotyped material never holds the interest of a group for any length of time. When a group is formed it is advisable to meet with it and to prepare lesson plans to satisfy its specific needs. The course prepared for a 12 week period may be divided into 4 units: community health, communicable disease, child hygiene, and home care of the sick. Units may be extended or contracted. Two hour class periods are usual, with half of the period allowed for group discussion which should be carefully guided by the instructor. The course in Home Hygiene and Care of the Sick of the American Red Cross is desirable for those who wish to work for a certificate.

The public health nurse who has had preparation for teaching is the person best fitted to conduct classes for health information. Because of her experience in the homes of many, she is able to understand the needs and limitations of those who come for instruction and the nursing technics which she is able to demonstrate are always a source of pride to the women who learn them. Definite skills which may be shown to a neighbor inspire respect for the information which accompanies them. Groups formed for the study of nutrition should be guided by a nutritional expert.

At present, women must form the large number of those who are given

intensive courses in health. Groups of men may be reached in factories, at luncheons, and at meetings for an occasional talk about important health matters, but organized classes which prepare for leadership can be given only to those who can devote a regular period each week for such education.

With the new leisure provided under recent legislation there is an opportunity for study courses for men who wish to know the health problems of their community. Groups of men should be taught by a man, and the new order is a challenge to men in public health which will have to be met.

Intensive group teaching offers the only means of personal contact with persons who because of their better economic status will not be met by the public health nurse in the home or will not be found in clinics in which conferences are held. This group of self supporting, independent folks fashion the thinking of most communities. They own their homes; they pay taxes; they are vitally interested in what is provided for the health and welfare of their children. The greater number of these persons have had only such information as they obtained in physiology and hygiene courses in school, high school, or college. They have no means of interpreting the vast amount of so-called health information which appears in the press and is heard over the radio. Public health organizations can make a plan for keeping them informed as to the newer developments in health protection and conservation or they can be left to the winds which blow from bad advertising, cults, and fads. When community understanding is necessary to control disease or support legitimate health projects, the leader with sound information will be found to be of inestimable help in the health organization.

Switzerland—Physical Examinations of School Children

PHYSICAL examinations of school children were recently introduced in the rural districts in Switzerland with the coming into effect of the federal law on prevention of tuberculosis; the examinations were also extended to those city schools where they had not been given previously.

The school physicians in the rural districts serve on a part-time and in the cities on a full-time basis. The maximum number of children which it is considered advisable to allow to each physician is 3,000 in the rural districts and 8,000 in the cities.

In the cities the school children are given a tuberculin test and tested for the rapidity of sedimentation of the blood; those of them presenting suspicious symptoms are given a radiologic examination. In rural districts the regular school physician refers the suspicious cases to a specialist. All children in whom tuberculosis is found are referred to special dispensaries where the necessary measures are taken.

The school physicians are required to examine the teachers for tuberculosis. Those afflicted with a contagious form of this disease are given leave of absence with 80 per cent of their salaries. Supervision over the general hygiene of the school buildings is also a part of the physicians' work.—Office International d'Hygiene Publique, *Bulletin Mensuel,* Paris, Jan., 1934.

Transmission Sequence of Syphilis*

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THE conditions under which syphilis is usually transmitted from one individual to another are simple and generally well understood. Based upon this knowledge reduction and control of the disease have been sought along several lines, particularly, (1) by education of young people in sex matters, urging continence, (2) by educating the incontinent in the use of prophylaxis, (3) by the suppression of commercialized prostitution, and (4) by extending clinical facilities so that the infected persons may seek treatment as early as possible. There are at present no convincing figures showing that these methods have brought about a material reduction in the incidence of the disease in the United States.

More recently, the U. S. Public Health Service through a grant from the Rosenwald Fund has attempted to capitalize in a wholesale way the well known fact that a small amount of anti-syphilitic treatment will render patients non-infectious. In a few selected areas it attempted mass sterilization of the colored population based upon extensive serological survey. It is too early to judge the effectiveness of this attack.

It is proposed to bring to attention in this paper a more direct, intensive, epidemiological attack upon syphilis and to submit the experience of our office and clinic in the use of this method during the last 2 years. The nature of this approach is identical to that used in the control of other infectious diseases. It depends upon a simple epidemiologic investigation of every early case of syphilis which comes under observation. This investigation is directed toward ascertaining the identity of the person from whom the patient acquired the disease, and the identity of other persons exposed to the same source or to the patient since infection. Having listed as completely as possible the names and addresses of exposed persons, the next step is to persuade as many as possible to seek immediate medical advice with a view to early diagnosis and treatment if needed. The direct effect is to institute early treatment in the patient's interest and to reduce to a minimum the infectious period of each new case as it arises.

This procedure differs from that used in many other contagious diseases only in that we are dealing with a sex matter. Persistence and tact are necessary, but the patient in the office or clinic may be depended upon to give the necessary information. There is nothing particularly new about this approach but with few notable exceptions, public health officials have disregarded its practicability and effectiveness.

During the 2 years, September 1, 1931–August 31, 1933, 568 patients were admitted. Of these, 193 were questioned regarding sex contacts, the names and addresses of possible sources

* Read before the Epidemiology Section of the American Public Health Association at the Sixty-second Annual Meeting in Indianapolis, Ind., October 11, 1933.

TABLE I

DISCOVERY OF EXPOSED PERSONS THROUGH QUESTIONING OF ORIGINAL CASE AND ADMISSIONS TO THE CLINIC CONSEQUENT UPON FOLLOW-UP

	Original Cases	Named	Contacts						
			Individuals Represented	Consequent Admissions					
				Voluntary		Follow-up		Total	
				No.	%	No.	%	No.	%
White	67	129	101	18	18.0	42	42.0	60	60.0
Colored	90	216	177	19	10.7	47	26.5	66	37.2
Total	157	345	278	37	13.3	89	32.1	126	45.3

of infection and contacts since infection. Questions were limited to the following groups: patients from the city, county and adjoining districts, since we had no means of following up patients in distant localities; patients of all ages having recent infections or in infectious stages; all patients between the ages of 15 and 30 years since these are more apt to have recent infections, and being in the ages of greater promiscuity, are more apt to spread the disease. This selection was arbitrary, each case being judged on its merits. Of the patients questioned, 157 or 81.3 per cent gave the desired information; 34 professed ignorance of the real identity of their consorts or named contacts in distant localities, while 2 refused to name their contacts and facts concerning 1 of these were cleared up by a second patient.

The follow-up of contacts was started immediately upon their identification. Infectious patients were started on sterilizing therapy as soon as possible and all suspects placed under observation, treatment being instituted at the first diagnostic evidence of infection. Each patient was instructed to try to get his or her contacts to be examined. Letters were sent to contacts advising them to report for examination. A nurse visited contacts and urged them to consult their physicians. When other measures failed, contacts were reported to the health officer.

The discovery of exposed persons through questioning the original cases, and admissions to the clinic consequent to follow-up are shown in Table I. One hundred and fifty-seven patients questioned gave 345 names which, removing duplicates, involved 278 individuals, 126 of whom were admitted to the clinic, 37 coming for examination voluntarily. Undoubtedly some others would have come in eventually, but through follow-up measures we were able to bring in 89 others, many of whom were ignorant of the possibility of infection. Follow-up increased the proportion of infected individuals who were brought under treatment in the early stages, thereby reducing the period of infectiousness and increasing the possibility of cure.

Table II shows the admissions of contacts to the clinic consequent to the various agencies of approach or because of their own volition. The effective methods are varied. There was little compulsion as noted by the fact that the aid of the health officer was solicited in only 7 instances. The later method was used as a last resort in

TABLE II

ADMISSIONS TO THE CLINIC OF INDIVIDUALS NAMED AS CONTACTS BY THE ORIGINAL CASES CONSEQUENT TO VARIOUS AGENCIES OF APPROACH OR BECAUSE OF THEIR OWN VOLITION

Follow-up Through	Consequent Admissions to Clinic						
	White		Colored		Total		
	Male	Female	Male	Female	Male	Female	Both
Friends	14	4	3	6	17	10	27
Letters	5	8	3	9	8	17	25
Clinic Physician	6	2	17	5	23	7	30
Health Officer	0	3	1	3	1	6	7
	25	17	24	23	49	40	89
Voluntary	9	9	7	12	16	21	37

selected cases, all information being kept confidential so far as possible.

The syphilitic seeking advice may be the means of uncovering many other patients just as we may determine carriers of other infectious diseases. Through careful history taking it is possible to trace the transmission from person to person with a fair degree of accuracy. Such an example is shown in Figure I. Of this group 19 were placed under observation within a 2 month period. We were unable to locate the remainder. No new infections have been traced to any of this group since it was cleared up 20 months ago.

A summary of the entire study is shown in Table III. The original

TABLE III

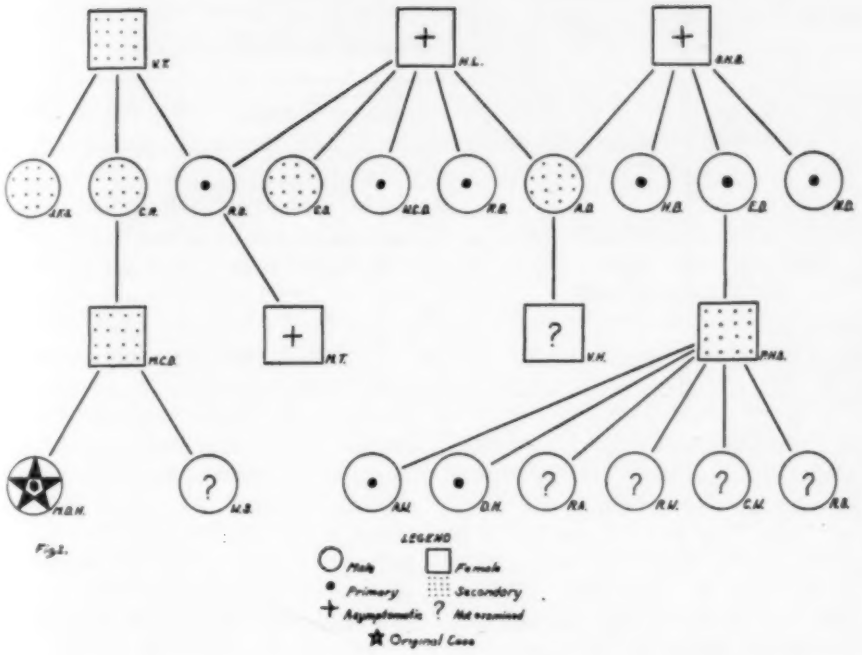
NUMBER OF EXPOSED CONTACTS PER CASE AND ESTIMATED NUMBER OF INFECTED CONTACTS PER CASE OBTAINED BY FOLLOW-UP INVESTIGATION

	Original Cases	Exposed Contacts						
		Total No.	No. per case	Admitted to Clinic			Estimated	
				Total No.	No. Found Infected	Per cent Infected	Total No. Infected*	No. Infected per case
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
White	67	101	1.50	60	48	80.0	80	1.20
Colored	90	177	1.95	66	46	69.7	123	1.36
Total	157	278	1.77	126	94	74.6	203	1.29

* Estimated Total Number Infected obtained by applying percentage in sample group (d) to total number of exposed contacts (b).

FIGURE I

TRANSMISSION FROM PERSON TO PERSON



cases here embrace all patients who named contacts. Contact exposure rate is shown in column (c). This exposure rate is an index of promiscuity and is not related directly to the spread of syphilis. It is true that a decrease in this rate will necessarily reduce the incidence of the disease. It is toward the reduction of this figure that sex educational measures are directed, but results from any attack at this point will be slow to materialize. The infected contacts per case is shown in column (h). It is this figure in which we are most interested, and diligent contact follow-up will reduce this. So long as this figure remains greater than 1.0 an increase in the incidence of the disease is indicated. When it becomes less than 1.0 a decline is indicated. The immediate follow-up of contacts with resulting sterilization will tend to lower the infected contact rate and this procedure can be more readily carried out than the elevation of the moral standards. The accuracy of the figures given here is limited by the accuracy and completeness of the information obtained. The estimates may be higher than the actual number of infections since those persons presenting themselves to the clinic probably include a majority of the infected individuals, who had reason to come. For every patient diagnosed or examined there was at least one who was not seen. The incidence is probably lower in the latter group.

A similar study applied to source cases is shown in Table IV. Each patient was shown by analysis of histories to be the source of at least one infection. The white patients of this class present a contact exposure rate much higher than in the general group, whereas there is slight increase in the promiscuity index in the colored source

TABLE IV

NUMBER OF EXPOSED CONTACTS AND ESTIMATED NUMBER OF INFECTED CONTACTS PER CASE KNOWN TO BE THE SOURCE OF AT LEAST ONE INFECTION

	Source Cases	Exposed Contacts						
		Total No.	No. per case	Admitted to Clinic			Estimated	
				Total No.	No. Infected	Per cent Infected	Total No. Infected	No. Infected per case
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
White	24	62	2.5	51	46	90.1	56	2.3
Colored	27	54	2.0	39	36	92.3	50	1.8
Total	51	116	2.2	90	82	91.1	106	2.0

cases. This difference is due in part to the fact that several clandestine prostitutes are represented in the white source cases. In addition we found it more difficult to obtain full information from the colored patients. The infected contact rate is also considerably higher in the white group than in the colored in which commercialized vice is negligible. Through the follow-up of prostitutes a great step is made in preventing the spread of syphilis in the white population. In the colored race the entire population must be dealt with.

A further analysis of the stage of the disease in the source cases reveals that with 1 exception the disease was early, having been acquired within a year. This was a delinquent patient, with little treatment, who developed a muco-cutaneous relapse and infected his fiancee through kissing. Of the 51 known source cases, 8 had primary lesions at the time of admission, 22 had secondaries and 20 were diagnosed serologically, but the histories indicated early infections. Efforts should be directed toward treating these patients and rendering them non-infectious.

SUMMARY AND CONCLUSIONS

These results show that it is practical to trace sources of infection and exposures in syphilis. A large majority of new patients will volunteer the necessary information and the follow-up may be readily carried out by the clinician with infrequent aid of law enforcement. Immediate follow-up by means of letters and personal communications is sufficient to increase greatly the proportion of exposed persons brought under treatment in early stages.

Arsenic Poisoning by Pies

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EARLY in January, 1934, a number of persons in the northeast section of Philadelphia were made sick by eating pies manufactured by a local baker. The pies were of different varieties, including apple, lemon, and mince. The members of the baker's own family were among those who had suffered illness after eating portions of the pies. The symptoms were those of gastro-intestinal irritation, all of the cases being characterized by vomiting and diarrhea. Investigation of this situation by John H. Tryon, General Agent of the Bureau of Foods and Chemistry of the Pennsylvania Department of Agriculture, resulted in his bringing to our laboratory a specimen consisting of half a lemon pie.

Analysis of the pie revealed the presence of arsenic in remarkably large amounts. The weight of the sample submitted was 375 gm., of which 255 gm. was filling, and 120 gm. was crust. A quantitative determination of the arsenic in both crust and filling showed 0.184 per cent of arsenic trioxide in the crust and 0.015 per cent of arsenic trioxide in the filling. This pointed clearly to the fact that the contamination was probably due to some ingredient used in the crust. The bakery was visited and a number of samples of raw materials taken for examination, none of which was found to contain arsenic. The baker then recollected that the crust of all of the pies made on the day previous to the one on which the people became ill had been made with corn meal which was part of a lot purchased at an auction sale a few days previously, which had included the stock of a grocery store which had become bankrupt. He recollected also that one of the cartons of corn meal had been opened and was only partly filled when he received it. Investigation through the auction company and subsequently through the former manager of the store whose products had been sold, revealed the fact that there had been a box of corn meal opened and the contents mixed with sugar and rat poison, then put back and kept for use in poisoning rats. The store manager also admitted that this package of corn meal had not been labeled and that only a few of the people in the store knew about it, and that it could easily have been sold and used as corn meal.

Approximately 150 people were reported as having been made ill from eating 30 pies which the baker admitted having distributed. Many of them required medical attention, but only 1 was taken to a hospital. This patient was discharged within 48 hours as cured. The absence of any fatalities in this case of wholesale poisoning, which was due to gross negligence, may be accounted for by the fact that the arsenic was present in such large amounts, as the calculations showed that each pie contained between 7 and 8 grains of arsenic trioxide. The baker suffered no loss of prestige, apparently, as he and his family had also been victims, and he had been prompt and generous in payment of fees for medical attendance of victims of the accident.

Immunization of Humans with Alum Precipitated Tetanus Toxoid*

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FOLLOWING a study of the immunizing effect in guinea pigs treated with tetanus toxoid a preliminary report of which has been published [1] our studies were directed to the immunization of humans.

The local effect of the plain toxoid, in causing smarting, lasting for 5 minutes or longer, showed that plain toxoid is an undesirable preparation. An investigation on the effect of the addition of potash alum was carried out. It was believed that the addition of potash alum would enhance the antigenic action of the toxoid, and that by washing the alum precipitate with sterile normal saline solution, following the procedure of Wells, Graham, and Havens [2] would reduce the content of nonspecific protein in the toxin. The alum precipitated toxoid generally causes neither local nor general reaction, except slight local soreness in persons who are highly susceptible to the proteins in culture media.

The following reports on the antitoxic content of the serums of persons that had received prophylactic injections of tetanus toxoid have been found in the literature:

Ramon and Zoeller [3] tested the blood serum of 12 persons that had received 2 or 3 injections of 1 c.c., 1.5 c.c., and 2.0 c.c. of tetanus toxoid. Three or 4 years later the antitoxic content of the serums ranged from 1/500 to 1/6 (American) unit per c.c. of serum.

Another individual received 3 doses of tetanus toxoid and some time later a 4th dose was given; 1 c.c. of this person's serum neutralized 1,500 m.l.d. of tetanus toxin, representing 1.5 units of antitoxin per c.c.

Lincoln and Greenwald [4] treated 5 adults and 13 children with 3 doses of 0.5, 1.0 and 1.5 c.c. of tetanus toxoid at intervals of a week. Four to 8 months later blood was drawn and the serum tested for antitoxin. The serums of 4 children contained sufficient antitoxin to neutralize 1 to 2 m.l.d. of tetanus toxin, while the serums of the other persons contained only traces of antitoxin. Without further injections of toxoid the amount of antitoxin found in 2 of the children on retesting 18 to 19 months later was sufficient to neutralize 5 m.l.d. of tetanus toxin with 1 c.c. of serum.

Of 7 individuals whose serum contained only a trace of tetanus antitoxin 4 to 8 months after a series of injections of tetanus toxoid, without further injections of toxoid, 6 individuals were retested 12 to 18 months after the first test. Three adults and 1 child still showed only a trace of antitoxin while 2 other children had developed sufficient antitoxin to neutralize 5 m.l.d. of tetanus toxin with 1 c.c. of serum.

Some of the other individuals whose serum contained only a trace of anti-

* Read before the Laboratory Section of the American Public Health Association at the Sixty-second Annual Meeting in Indianapolis, Ind., October 12, 1933.

toxin 4 to 8 months after receiving three injections of tetanus toxoid were given further injections of 3 or 4 doses of tetanus toxoid. When tested 6 months later 1 c.c. of their serum neutralized from 25 to 75 m.l.d. of tetanus toxin.

Sacquépée [5] tested the blood of 240 persons that had received a series of 3 injections of tetanus toxoid of 1.0 c.c., 1.5 c.c., and 2.0 c.c. at intervals of 10 days. Six months later he found the following amounts of antitoxin per c.c. of serum: One serum contained ½ a unit (American) of antitoxin, 6 serums contained 1/3 unit, 120 serums contained 1/10 unit, 68 serums contained 1/30 unit, 10 serums contained 1/40 unit, 22 serums contained 1/50 unit, 4 serums contained 1/60 unit, 3 serums contained 1/100 unit, and 6 serums contained less than 1/100 unit.

Zoeller and Ramon [3] first reported on the use of tetanus toxoid for prophylactic treatment of humans in doses of 1.5, 1.0, and 2.0 c.c. injected subcutaneously.

The toxoid employed in the studies here reported was prepared from a toxin containing 10,000 m.l.d. per c.c. The toxin was detoxified with 0.4 per cent formaldehyde. The toxoid was precipitated with 2 per cent of potash alum, washed twice with and resuspended in normal saline solution. Merthiolate was added to make 1:10,000 dilution. The addition of potash alum to toxoid is believed to retard the rate of absorption and thereby appears to increase the antigenic action, so that it might be used in doses of 1 c.c. The antigenic effect of the alum precipitated tetanus toxoid was tested on guinea pigs by the injection of 1 c.c. The antitoxic content of the blood was tested 6 and 8 weeks later. From the results obtained it is believed that information has been secured as to the prophylactic value of alum precipitated toxoid for the induction of active immunity to tetanus infection in human beings.

Five guinea pigs were given a single injection of 1 c.c. of the alum precipitated tetanus toxoid. Six weeks after the injection of the toxoid the guinea pigs were bled. The serum was separated from the clot and the amount of antitoxin was determined by testing the neutralizing value of the serum when mixed in different amounts with 0.1 L+ dose of standard tetanus toxin and injected subcutaneously into normal guinea pigs.

It was found that a dose of 2.0 c.c. of pooled guinea pig serum, when mixed with 0.1 L+ dose of standard tetanus toxin and injected into the subcutaneous tissue of normal guinea pigs, gave protection to the animals, while 0.2 c.c. of the guinea pig serum failed to protect. Each c.c. of the pooled guinea pig serum, therefore, neutralized at least 50 m.l.d. of tetanus toxin, or contained 1/20 of a unit of antitoxin per c.c.

Eight weeks after the injection of the dose of tetanus toxoid the guinea pigs were again bled and the pooled serum was tested in the same manner. In this test 0.2 c.c., 0.3 c.c. and 0.4 c.c. each gave complete protection against 0.1 L+ dose of tetanus toxin, representing the neutralization of at least 500 m.l.d. of tetanus toxin or ½ unit of antitoxin per c.c.

Our study of the antigenic effect of a single dose of alum precipitated tetanus toxoid in human beings was started on 33 adults and on a boy 10 years of age. About 5 c.c. of blood was first procured to ascertain whether normal persons have tetanus antitoxin in their blood. None of the specimens of normal blood showed the presence of measurable amounts of antitoxin.

Immediately after withdrawing blood from 34 individuals each received an injection of 1 c.c. of the alum precipitated tetanus toxoid by deep subcutaneaus injection into the upper portion of the arm.

The serums of 8 of the 34 persons that had received a dose of 1 c.c. of the alum precipitated tetanus toxoid from 25 to 42 days earlier, were tested for antitoxic content, and 4, who were within the age group of 20 to 30 years, showed from 1/1000 to 3/1000 of a unit of antitoxin per c.c. The other 4 tested showed only traces of antitoxin. The 4 that showed measurable amounts of antitoxin had received the dose of antitoxin only 25 days prior to the tests. The serums of 2 individuals, who were over 50 years of age, when tested 68 days after treatment with tetanus toxoid showed only a trace of antitoxin.

It is realized that more time must elapse before measurable quantities of antitoxin can develop in human beings, especially in persons over 50 years of age. However, since guinea pigs receiving a dose of 1 c.c. of the alum precipitated tetanus toxoid developed as much as ½ of a unit of antitoxin in 1 c.c. of serum in 8 weeks, it is believed that human beings after an injection of a dose of 1 c.c. will show at least 1/250 of a unit of antitoxin in 6 to 8 months.

The relative importance of active immunization with tetanus toxoid over passive immunization with tetanus antitoxin is readily appreciated by those who have been engaged in the control of diphtheria infection. The incidence of diphtheria infection remained relatively high in different communities until active immunization with T-A mixture, and more recently with diphtheria toxoid, became a routine procedure, especially in the protection of children in the preschool age.

It is believed that active immunization against tetanus infection by the use of alum precipitated tetanus toxoid, is of great importance in conserving health, especially for those individuals within certain age groups and for those engaged in civil and military pursuits where the potential danger of tetanus infection is high. Active immunization against tetanus will materially lower the incidence of tetanus infection in persons engaged in certain industrial occupations: in railroad employees, in miners, in lumbermen, in those engaged in agriculture, and especially in the personnel of the military services. Active immunization against tetanus infection is especially indicated for anyone who is engaged around machinery in industry, or those who ride in automobiles and trucks, in the highly congested traffic on our public highways.

Ramon and Zoeller[3] have pointed out that if a person actively immunized against tetanus, should meet with an injury, he should not receive a dose of tetanus antitoxin (as would be the practice with a nonimmune person) but should receive a second dose of toxoid. This second dose would quickly raise his immunity to a higher level and protect him against infection. From the reports in the literature with regard to the persistence of the active immunity it is evident that it would not be necessary to administer a dose of toxoid after each injury. In persons who are injured frequently a dose of toxoid given annually would probably give ample protection.

There is as yet no fixed opinion as to the degree of immunity against tetanus that should be attained from the first dose of tetanus toxoid, the "primary stimulus." French investigators have so far reported no occurrence of tetanus infection in persons actively immunized by a series of 3 injections of plain toxoid.

It is believed that we may take the experience with diphtheria toxoid as an index of the degree of active immunity necessary for protection against tetanus infection. Diphtheria toxoid that induces the development in 6 weeks of 2 units of antitoxin per c.c. of serum in a normal guinea pig, is considered satisfactory for prophylactic use in humans whether 1 or 2 doses are ad-

ministered. It appears reasonable that a tetanus toxoid inducing the development, in 8 weeks, of ½ of a unit of antitoxin per c.c. of serum in a guinea pig of standard weight may also be satisfactory whether 1, 2, or 3 doses are administered. A Schick negative individual has 1/30 of a unit of diphtheria antitoxin in each c.c. of his blood serum. On this basis it is believed that a person who has been treated with tetanus toxoid should have at least 1/250 unit of tetanus antitoxin in his blood serum 6 to 8 months later. From the evidence contained in the reports on the antitoxic content of the serum of treated persons (Ramon and Zoeller,[3] Sacquépée,[5]) it is evident that the 3 doses injected by the French investigators generally induced even a much higher antitoxic content.

The development of active immunity against tetanus in the treated individuals is influenced by several factors. The age of the individual is a definite factor in the development of immunity to tetanus as well as other diseases. Lincoln and Greenwald[4] found that 4 of 13 children, 4 months after treatment, had sufficient antitoxin in their blood to neutralize 1 or 2 m.l.d. of tetanus toxin, while 5 adults and 9 other children showed only traces of antitoxin.

In our own studies on the serums of 8 individuals we found that 4 persons between 20 and 30 years of age had developed measurable amounts of antitoxin 25 days after receiving a dose of tetanus toxoid while 2 of the 8 individuals who were over 50 years of age had not developed measurable amounts in 68 days.

The development of tetanus antitoxin in the blood of persons is a slow process and requires several months before appreciable amounts of antitoxin can be detected. Lincoln and Greenwald found that of 6 individuals, 3 adults and 3 children, who, 4 to 8 months after treatment, showed only a trace of antitoxin, and were not reinjected, 2 of the children, 12 to 18 months later had developed sufficient antitoxin to neutralize 5 m.l.d. of tetanus toxin. From these results it is evident that time is an important factor in the development of tetanus antitoxin in human beings.

Other factors, of unknown nature, also influence the development of antitoxin as shown by the variation in the degree of immunity induced in different horses treated with the same tetanus toxoid; in the treatment of different guinea pigs with the same tetanus toxoid; and the variation in the antitoxic content of the serums of human beings. The factor which is probably of greatest influence in this particular is the physical condition, as influenced by other diseases, of the horse, guinea pig, or man, at the time of receiving the treatment.

Tetanus toxoid should not be used for therapeutic purposes. It should not be injected into a nonimmune person at the time of receiving an injury. Persons actively immunized with tetanus toxoid when injured, should receive another dose of tetanus toxoid, while persons who are not actively immunized should receive a dose of tetanus antitoxin. In such an individual active immunization may be carried out by giving a dose of tetanus toxoid about 2 weeks after the receipt of a dose of tetanus antitoxin, following an injury.

The points of special importance in the use of alum precipitated tetanus toxoid are: (1) The induction of an active immunity in 3 to 6 months. (2) The absence of either local or general reaction from the dose of alum toxoid, except slight local reaction in occasional individuals who are highly sensitive to the proteins contained in culture media. (3) Absence of danger of sensitizing the individual to horse serum proteins such as may occur from repeated prophylactic doses of tetanus

antitoxin when used for prophylaxis following injuries.

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Houston Adopts a Cross-Connection Idea Worthy of Note

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THE officials of the City Water Department at Houston, Tex., are "on their toes" and apparently taking advantage of every opportunity to safeguard the quality of the municipal water supply. As an evidence of this alertness there is shown below a rather commendable policy which has been adopted in the furtherance of their campaign seeking the elimination of all cross-connections.

The writer was afforded the privilege recently while in Houston of reviewing the reports of a survey and resurvey of a condition in the basement of a large office building at which several connections between the city water supply and the building sewer were found to exist. Unfortunately the attitude of the building management was distinctly antagonistic toward making the required changes, expressing itself as believing that the matter was of no importance and simply an attempt on the part of the City to "give somebody a job."

The discussion of the Chicago amebic dysentery outbreak as presented in *Time* of February 12, 1934, was pasted upon the left hand side of a City of Houston letterhead and numerous photostats produced, one of which was used in replying to the officials of the office building referred to.

In the course of a sanitary survey of the Houston water supply in 1928 some 6 or 8 instances of cross-connections between the municipal and private supplies were recorded with the expectation that this list would probably be increased to 15 or 20 by a comprehensive cross-connection survey.

On March 4, 1930, a cross-connection ordinance was passed by the city and on December 15, 1930, one engineer was assigned exclusively to cross-connection surveys and elimination. During the 3 year period, 1931 to 1933 inclusive, there were made 199 surveys (including resurveys) and 113 cross-connections definitely eliminated, 44 in 1931, 44 in 1932, and 25 in 1933.

The city ordinance includes authority for the discontinuance of water service until such time as conditions are made safe in addition to a maximum fine of $200 each day after the period granted for correction constituting a separate offense.

It is believed that the success of this phase of the water supply sanitation program at Houston has been due to the efficiency with which the surveys

have been conducted, the diplomacy on the part of the water department officials in negotiating with building owners involved and the distinctly coöperative attitude on the part of the large majority of these property owners.

LETTER SENT OUT BY HOUSTON WATER DEPARTMENT

God & Plumbing

Like typhoid, the germs of amebic dysentery may be spread through water contaminated by sewage. But when Chicago belatedly reported a full-fledged dysentery epidemic as A Century of Progress was closing wiseacres assumed that the second city in the land had up-to-date sanitation and therefore the germs could have been transmitted only on food infected by dirty-handed hotel employes (TIME, Nov. 20). Last week in the *Journal* of the American Medical Association a committee of experts on sanitation and tropical diseases, including National Institute of Health Director George W. McCoy, Mayo Clinic's Dr. Thomas B. Magath & Maryland's Board of Health Engineer Abel Wolman, reported its recent investigations in Chicago. The experts laid blame for the epidemic on an Act of God and defective plumbing in the two hotels which were the chief sources of infection. The committee clemently referred to the hotels as C and A, but everyone knew it meant South Michigan Boulevard's big, popular Congress and its smaller neighbor, the Auditorium.

The committee found the hotels' water and sewerage piping systems so old and faulty that when heavily taxed they would let waste from bathtubs and toilets siphon back into drinking water pipes. Water and sewer pipes were cross-connected. Sewers were leaky. Last June 29 a heavy rain overloaded sewers near the Auditorium, flooded its basement. Three days later another cloudburst broke two of the Congress' sewers, filled its ice storage house and covered its food-packed basement three to six inches deep with muck.

Connections between sewage and water pipes have since been cut. But, said the committee: "Unless the antiquated plumbing and conditions of food-handling found in Hotels C and A are remedied, there seems to be no warrant that a recurrence of the outbreak here considered may not develop under similar conditions."

Up to last fortnight 41 deaths and 721 cases of amebic dysentery in 206 cities had been apparently traced to Chicago. The committee cleared Chicago's Health Commissioner Herman Niels Bundesen of laxness or negligence in handling and publicizing the epidemic. Last week Commissioner Bundesen promised rigid plumbing and food inspection, called for an emergency staff of 20 sanitary engineers.

TIME, *February* 12, 1934

February 28, 1934.

Blank Bank and Office Bldg.,
Houston, Texas.

Att'n Mr. John Doe,
Vice-President

Gentlemen:

Referring to our letter of the fifth of February and your answer dated February 8th, concerning the existing cross-connections between water service lines and sewer lines in the basement of your building, we are informed that no steps have been taken to eliminate these cross-connections as requested by us.

This office made its first survey of your piping connections in July, 1929, and the condition complained of was in existence at that time. Due to some oversight, the matter was not brought to the attention of the former owners of the building. A re-survey was made on the thirtieth of January, this year, in connection with our usual routine and the cross-connection was found to still exist.

In March, 1930, the City Council approved an ordinance covering cross-connections, a copy of which is attached hereto, and this office has been working since that time on the elimination of these health hazards. Your attention is invited to the article reprinted on this page as evidence of what might occur if such conditions as now exist in your piping were allowed to continue.

In accordance with the provisions of the above mentioned City Ordinance, you are hereby notified that the cross-connection between city water lines and the sewer, now existing in your building, must be eliminated within the time specified in said City Ordinance or we shall be forced to take such steps as will protect the purity of our public water supply.

We believe that with these facts at hand we may expect your complete coöperation toward the end that the health of your employees, tenants and the public may not be subjected to the hazards that now exist.

Yours very truly,
J. B. Dannenbaum, Engineer,
Water Division

Diphtheria Prevention in Charleston, West Virginia

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Health Commissioner, Charleston, W. Va.

IN 1929 a campaign of diphtheria prevention was organized jointly by the City Health Department and the School Health Service. Toxoid was offered to all children in the first 6 grades. The response was very gratifying, it being estimated that over 75 per cent of these children were protected.

During the following 3 years the work was restricted to students entering the Charleston schools for the first time. For several reasons the immunization program was not pushed and the per cent of children immunized decreased. During these years there was very little change in the case and death rates from diphtheria. The Health Commissioner realized that the system which was followed was inadequate and reached only a small per cent of the preschool children. These campaigns, however, stimulated an interest in diphtheria protection on the part of the physicians of the city. There was not only an increase in the interest on the part of the physicians but a growing hostility toward the official health agencies providing the services which the physicians felt belonged to them.

In May, 1933, a paper was presented at the Annual Meeting of the West Virginia Medical Association in Charleston, outlining the program of professional participation which has been sponsored in Detroit by the Wayne County Medical Society and the Department of Health, and in three rural counties of southwestern Michigan by the W. K. Kellogg Foundation. So great was the response to this paper that an informal luncheon meeting was entirely devoted to further discussion of this subject. The officers of the Kanawha County Medical Society and the Health Commissioner of the City of Charleston decided that the next diphtheria campaign should be along the lines of the programs established in Michigan.

When the public schools opened in September, such a plan was earnestly considered but the financial condition of the City of Charleston prevented the Health Department from initiating the program at that time. The Health Commissioner had decided that it would be necessary to have toxoid available without cost to the physicians if the campaign were to be a success. During the month of September, 8 cases of diphtheria were reported and in the first 8 days of October, there were 5 additional cases. While attending the Annual Meeting of the American Public Health Association at Indianapolis, the Health Commissioner decided that the diphtheria campaign was an urgent need in Charleston. The State Health Commissioner offered to furnish toxoid without charge to physicians. Returning to Charleston, the Health Commissioner met with the local medical society and it was decided that immediate action should be taken. The President of the Medical Society appointed a Public Health Committee consisting of 5 members, 2 of whom were

pediatricians. During the month of October there were reported 21 cases of diphtheria and the disease seemed to be on the increase. Reports from the State Health Department indicated a rapid increase throughout southern West Virginia.

The Commissioner decided that 2 weeks would be required to prepare both the physicians and the public. An outline was sent to all physicians explaining the nature of the proposed campaign and requesting each physician to return a card indicating whether or not he would be willing to coöperate in the project. There are about 125 physicians in active practice in Charleston and, of this number, 88 agreed to coöperate. The committee divided these 88 names into 5 groups and each member of the committee agreed to telephone or personally see the physicians on his list and thoroughly inform them of the details of the plan.

The plan briefly was as follows: (1) On November 9 and 11, at the hours from 3:00 to 5:00, all coöperating physicians would be in their offices, prepared to immunize children; (2) for those whom the physician judged able to pay, a charge of $1.00 per visit would be made; (3) those unable to pay would be immunized without charge; (4) individuals desiring to come to the physician at other hours than those specially designated would be charged whatever the physician deemed proper; (5) there would be no free clinics or school clinics held by the Health Department nor by the School Health Service. A mass meeting was held for the detailed instruction of the coöperating physicians.

During the 2 week period immediately preceding the opening of the campaign a constant program of public instruction was carried on through the press. The local radio station offered its facilities for evening talks and 3 radio talks were given. Hundreds of pamphlets urging immunization were distributed to the school children in the lower grades. The public health nurses urged immunization wherever and whenever they made calls for any purpose. A series of talks to all the Parent-Teacher Associations was inaugurated.

Cards were obtained and distributed to physicians for the purpose of recording the name, address, age, date of doses (2 dose toxoid being used), and a space was provided for recording whether the patient paid or was considered a charity case. At the same time pads of immunization certificates were left with the physician to give to the parents upon completion of immunization.

During this time new cases of diphtheria were being reported almost daily, and 2 deaths occurred. The public was kept fully informed concerning the prevalence of the disease. In accordance with the pre-determined plan the physicians devoted a total of 4 hours of their time to the immunization program on November 9 and 11. Two days later, that is, on November 13, the Health Department called upon all the cooperating physicians to report the number of children who had received a first dose of toxoid. The tabulation showed that approximately 1,200 children from 6 months to 6 years of age, and another 1,200 over 6 years of age had received their first treatment. This represents approximately two whole age groups in Charleston. The high per cent of preschool children protected was especially impressive. Postcards were supplied to all physicians to be sent to parents just before the second dose of toxoid was due.

In the middle of December report cards were collected from all coöperating physicians, and a second letter was sent to the parents of those children who had not returned for their second dose of toxoid. A tabulation made at that time showed a total of 2,905 com-

plete immunizations and 1,404 of these were for children from 6 months to 6 years of age. For individual years there were as follows: 6–12 months, 162; 1–2 years, 212; 2–3 years, 245; 3–4 years, 286; 4–5 years, 250; 5–6 years, 249; 6–7 years, 222; 7–8 years, 239; 8–9 years, 210; 9–10 years, 182; 10–11 years, 181; 11–12 years, 114; 12 and over, 303; and miscellaneous 50. The miscellaneous represent the group in which no age was recorded. It is estimated that there are 5,500 children in Charleston between 6 months and 6 years of age. It would therefore appear that about 25 per cent of these children were immunized during the campaign.

In order to make a further check on this figure, the school physician sent questionnaires to the parents of all first grade children in 5 representative schools, 4 white and 1 colored. In the questionnaires it was asked how many children were in the family under 6 years of age; of these how many had been immunized before the campaign and how many were protected during the campaign. The same question was asked for children from 6 to 12 years of age. The questionnaires were satisfactorily returned and the figures indicated that approximately 50 per cent of both groups are now immunized and that these are rather evenly divided into 25 per cent protected during the campaign and 25 per cent protected prior to the campaign. The closeness with which this survey approximates the actual figures reported by the physicians leads us to believe that the estimate is a very fair one.

During the month of January, 1934, there were reported 7 cases of diphtheria. In February no case was reported. During the first week of March there was reported 1 case, that of a woman 37 years old. A special report received from 24 of the coöperating physicians indicated that the parent had paid for the service in 462 instances, while 459 services were given without charge. It therefore appears that the parents paid for the service in 50 per cent of the cases.

It has been shown that an immunization campaign can be successfully carried on without the aid of mass clinics by the official health agency. Active coöperation on the part of the local physicians under the direction of a strong steering committee is essential to success. The campaign played a definite part in checking an epidemic of diphtheria. No reactions of serious import were reported. If the 1 dose alum toxoid had been used, approximately 175 more immunizations could have been counted. The Kanawha County Medical Society has gone on record favoring a continuation of this type of medical participation in public health work and its extension to other immunizations as soon as practicable.

Modern Trends in Public Health Administration*

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IN this brief review of recent trends in public health administration as related to state health work, it is not my purpose to do more than indicate a few outstanding features in the growth and development of public health activity by state governments during recent years. It is wholly unnecessary to review statistical facts in detail as this information, in so far as it is compiled, is readily available in publications that should be in the library of every health officer and student of public health administration. It seems worth while, however, to point out a few of the really significant facts relative to recent developments in state health work, for certain of these developments appear to be definite trends toward specific objectives.

Perhaps the most significant fact apparent in recent years is the rapid growth in appropriations by state legislatures for state health organizations. As pointed out in the report of the Committee on Public Health Organization,[1] the average per capita appropriation by the legislatures of 41 states was $0.036 in 1915, but this amount had increased to $0.118 for 48 states in 1930, more than triple the 1915 figure. This rapid growth in funds for health service by state governments is indicative of 2 definite trends: (1) an increasing sense of responsibility of government for public health protection; (2) an increasing appreciation of the fundamental importance of the state government in the public health program. Until recent years, the public health service of many states had lagged behind the development of service by the larger municipalities, and in this connection we must remember that municipal health organization, historically, antedates state organization. In recent years the trend has seemed to indicate an increasing understanding of the interrelationships of the several elements of our government in public health organization and of the fact that each element has its basic functions to perform. Fields of activity are assuming clearer definition in relation to their interdependency, and apparently the modern trend is toward a more satisfactory partnership of service than has hitherto existed.

A second and most impressive development of the last decade and a half is the very evident trend to greater emphasis on the technical excellence of service and on the specificity of methods. Several facts indicate this trend in our modern conception of public health administration. First there is the increased support of epidemiological work, laboratory activity and sanitary engineering service. According to Chapin,[2] in 1915 only 14 states appeared to have had specific legislative allotments for epidemiological service and communicable disease control serv-

* Read before the Health Officers Section of the American Public Health Association at the Sixty-second Annual Meeting in Indianapolis, Ind., October 9, 1933.

ice, while in 1930 the number had reached 31. Twenty states had specifically allotted funds to laboratory service in 1915, and the number increased to 42 in 1930 with several others maintaining laboratory work through unallotted appropriations. Some 16 states appear to have had sanitary engineering service organized in 1915, but in 1930 all states had service of this character organized either under a special division or in relation to another departmental activity. Thus, in 3 of the basic functions of a state health organization, steady growth over a period of 15 years has resulted in nation-wide development of emphasis on the technical excellence of service as measured by the organization of technical divisions.

Another fact indicating this same trend is the increasing emphasis on special training of public health personnel. Within the period under discussion a number of university courses and no less than 3 schools of hygiene and public health have been developed as facilities for graduate training of personnel entering the public health field; and it is becoming the exception rather than the rule to find untrained individuals directing technical functions in our state health departments. Perhaps this is, of all factors, the most important, for, though statistical interpretation of its value is not possible, the investment is in intellectual values which, obviously, determine all trends.

Another evidence of the movement toward an increasing specificity of objectives is the tendency toward definite planning of programs in both their major and minor strategy and toward subsequent analysis of results. In other words, there seems to be a tendency to the adoption of a controlled experimental approach with objective appraisal of results for the purpose of increasing the specificity and effectiveness of methods. In connection with this trend, there has developed not only the method of appraisal in local health activity but deliberately planned field experimentation in methods for the application of existing knowledge has been executed on a scale not hitherto attempted.

In the light of these facts as indices of an increasingly excellent professional and technical approach to state health departmental administration, can we doubt that our practice will become increasingly effective?

Reference has been made to the interrelationship and interdependency of the health organizations of the several elements of government. A third and encouraging trend to better health service for the country as a whole is indicated by the evidence of increasing interest on the part of state health departments in local health departments, especially in rural health organization which constitutes the weakest link in our chain of facilities for public health protection. Less than 600 of our 3,000 counties are protected by health departments organized on a whole-time basis, yet even this is an improvement over the situation in 1926 at which time but 307 counties were so organized. While this progress is unimpressive it has been attained in spite of difficulties and discouragement which at times would discourage any but the pioneering spirit. The interest of the state organizations is shown by the increasing sums allotted from their budgets to the development and maintenance of rural health service. In 1929, $1,153,072.00 was invested by state governments in county health organizations, and this sum constituted nearly 15 per cent of the total budgets of some 501 health departments.

In the foregoing discussion I have cited 3 trends which seem to me to indicate the general course that state health organizations have charted and which with singleness of purpose they seem to be pursuing. Purposely, I have

refrained from detailed discussion of many other evidences of advancement and improvement since such detail would but serve to confuse the forest with the trees. I believe that in the observed trends to increasing realization of responsibility by state appropriating bodies, to the allocation of increasingly larger sums to basic technical services rendered by well trained personnel, and to a developing sense of the importance of local health work, we have evidence to encourage us in the belief that the modern tendencies in state health administration are sound and constructive. We should not permit our recent experience of reduced budgets, of lost personnel, of disrupted programs to discourage us from unrelenting pursuit of our ultimate objectives, for this experience is the result of economic disaster that has dislocated almost every social and economic relationship. On the contrary, secure in the knowledge that our method of approach to our objectives is sound, that our knowledge of methods of approach is increasing, and that each passing year gives us experience which better defines the relations of the 3 elements of American government, we must steadily and persistently pursue the course we have charted until the objective of a public health organization acting as a coördinate whole in the application of all existing knowledge available for the protection of humanity is achieved.

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Work of the Children's Bureau of Vienna

ACCORDING to the first report of its activities just issued, the Children's Bureau of Vienna, established in 1917, is doing relief work, health work, legal work, and other kinds of practical child welfare work.

The central office of the bureau has 14 district branches and employs 250 social workers who visit about 200,000 children annually. In addition to the work of its district branches, the bureau has charge of the various child welfare agencies in Vienna, for instance, the municipal receiving home from which children are sent to institutions or placed in foster families, and the board of public guardians which exercises supervision over children born out of wedlock and in some cases over those born in wedlock. In 1931 more than 26,000 children were supervised by that board. The children in foster families are visited regularly by the bureau's employees. The bureau participates in the enforcement of the child labor law and coöperates with the public schools of Vienna. It also supervises the 35 Municipal child health centers in which more than 50 per cent of the children born annually in Vienna are cared for, and 2 prenatal centers in which particular attention is paid to the treatment of expectant mothers for syphilis. Child guidance clinics are conducted in the district branches of the Bureau.—*Zeitschrift für Kinderschutz, Familien- und Berufsfürsorge*, Vienna, No. 9-10, 1933.

Pathogenicity of Certain Species of Monilia*

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VIEWED in the light of recent work, it appears that the conflict of opinion as to the pathogenicity of the monilia group of fungi depends upon the reported multiplicity of species, and the failure to recognize a variability in the virulence of different strains of the same species.

We have shown that many of the cultures classified as different species are identical organisms,[1] and that cultures isolated by us[2] from sputum of bronchitic patients, cases of thrush, and of vaginitis, all belong to 1 of 3 species, typified by either *M. parapsilosis*, *M. albicans*, or *M. candida*. The relative frequency with which organisms belonging to these species are found in association with inflammatory lesions of the human body and the result of pathogenicity studies also seems important in relation to the results reported in this paper. In our study of 150 cultures isolated from sputum we encountered only 5 strains of *M. parapsilosis* and 5 strains of *M. candida;* all others were *M. albicans*.

Plass, Hesseltine and Bouts[3] in a study of monilia vulvo-vaginitis report 28 cases due to *M. pinoyi*, 1 *M. metalondinensis*, 4 *M. krusei*, and 4 unclassified. We have shown that *M. pinoyi*, *M. metalondinensis* and *M. albicans* are identical organisms.

Redaelli[4] reports his results in the production of experimental moniliasis by intravenous, subcutaneous and intra-peritoneal inoculation of rabbits. He used 5 cultures: *M. pinoyi*, *M. metalondinensis*, *M. tropicalis*, *M. krusei*, *M. macedoniensis*. He was able to kill rabbits by intravenous inoculation in 5 to 6 days with all the cultures except *M. krusei* and *M. macedoniensis*. In previous reports we have shown that these 2 organisms do not belong to the monilia group of yeast-like fungi, but that *M. krusei* is a mycoderma and *M. macedoniensis* produces asci and is therefore an endomycete. He has, then, in this group only 3 monilias: *M. pinoyi* and *M. metalondinensis*, which are identical organisms, both being typified by *M. albicans*, and *M. tropicalis*, which is typified by *M. candida*. In his paper he neither discussed the variation in dosage required to kill nor the pathology of the lesion encountered sufficiently to indicate whether his cultures of *M. albicans* and *M. candida* differed in any particular in their pathogenicity or virulence.

Dowling[5] in a paper in which he reports experimental lesion produced by the intradermal injections of *M. albicans* also records the result of his animal experimentation with 3 cultures. He was able to kill rabbits by intravenous inoculation of 1 of these cultures. This culture was *M. pinoyi* Castellani and we have shown it to have all of the cultural characteristics of

* Read before the Laboratory Section of the American Public Health Association at the Sixty-second Annual Meeting in Indianapolis, Ind., October 12, 1933.

M. albicans. He does not name the other 2 cultures used but says that neither was pathogenic for rabbits.

Nye, Zerfas, and Cornwell[6] have studied a number of yeast-like fungi isolated from the gastrointestinal tract of well people and others afflicted with various diseases. They did not give a species name to any of their organisms but classified them as para-saccharomyces A, B, C, and so forth. All of their cultures classified as para-saccharomyces A were fatal for rabbits when given intravenous in doses of 2 to 100 million cells per 1,800 gm. of body weight. All others produced no lesions, macroscopic or microscopic, except para-saccharomyces B, which produced no gross lesions but microscopic lesions when given in large doses, 100 million cells per 1,800 gm. of body weight. A study of this paper reveals that the cultures classified as para-saccharomyces A are identical with our Type II organism, *M. albicans*, and the para-saccharomyces B correspond to our Type III, *M. candida*, while the para-saccharomyces C probably is the same as our Type I, *M. parapsilosis*.

In work just completed we have shown that all cultures of monilia which we have recognized as *M. albicans* will produce either death or extensive lesions when administered intravenously in doses varying from 0.5 to 1.5 million cells per 100 gm. of body weight; that cultures of *M. candida* have much less virulence, requiring doses varying from 5 to 35 million per 100 gm. of body weight to produce lesions or death and that *M. parapsilosis* has no pathogenicity; *i.e.*, even tremendous doses caused neither clinical manifestation in the animal nor macroscopic or microscopic lesion in any organ. The variability of doses required to produce death and to establish clinical and postmortem evidences for the various cultures is shown in Table I.

The animals receiving the larger doses died within 24 to 48 hours while those receiving the smaller doses died on the 6th to 8th day with symptoms of uremia. The doses described as morbidity doses did not prove fatal but caused an acute illness for several days, followed by recovery.

Just as the size of the dose required to cause death or produce acute and chronic illness had marked out 3 species of monilia, parapsilosis, albicans and candida, so the clinical course following the injections also sharply differentiated the 3 species. We were not

TABLE I

DOSE DIFFERENCES OF MONILIA SPECIES

(Dose in Millions per 100 Grams Body Weight)

Species	*Lethal Dose*	*Morbidity Dose*
	Millions	Millions
Monilia parapsilosis, Type I.....	None	200 *
Monilia albicans, Type II.....	1.5	0.5
Monilia candida, Type III.....	35.0	6.0

Dose Variability of Type II

Strain	*Lethal Dose*	*Morbidity Dose*
	millions	millions
4135	1.5	0.5
2112	1.5	0.5
22353	1.5	0.5
2117	3.0	1.0
33691	6.0	2.5

Dose Constancy of Type III

Strain	*Lethal Dose*	*Morbidity Dose*
	millions	millions
2113	30.0	5.5
1369	25.0	5.0
750	30.0	5.5
23669	35.0	6.0
14999	35.0	6.0

* No lesions

CHART I

TYPE II RABBIT—BRIEF PROTOCOL OF RABBIT NO. 19 INOCULATED INTRAVENOUSLY WITH 2 C.C. OF CULTURE NO. 41351 * (54,000,000 FUNGUS CELLS)

Date	Activity	Weight Grams	Temperature	W.B.C.	N.P.N.
	Clinical Course Before Inoculation				
6- 8-32	Well nourished and active	1,820	102.0	10,300	42.8
	Clinical Course After Inoculation				
6-10-32	Ill, hunched, does not eat		105.8	2,000	47.0
6-11-32	Ate carrots, appeared better		103.8	10,650	
6-13-32	Ate very little		103.8	36,050	
6-14-32	Ill, did not eat		105.6	17,300	133.0
6-15-32	Ill, hunched, slow respiration		104.8		
6-16-32	Died at noon	1,580	104.6	22,000	260.0

* *M. albicans*

able to cause death or even any symptoms in animals inoculated with *M. parapsilosis*, even though the doses were extremely large, 200 million per 100 grams of body weight. The charts, I and II, show the contrast in clinical courses run by animals inoculated with *M. albicans* and *M. candida* respectively.

With such a wide difference in the number of cells required to establish a moniliasis, and such a distinct difference in the acuteness of the manifestation, it is to be expected that the gross and microscopic lesions found at autopsy would reveal differences in the intensity and distribution of lesions.

Animals dying within 24 to 48 hours following intravenous injections of *M. albicans* revealed at post-mortem examination a distribution and intensity of lesions which clearly differentiated the reaction of rabbits to this species. The *Monilia albicans* rabbits showed multiple lesions throughout the body involving the kidney (Figure I,d) and

CHART II

TYPE III RABBIT—BRIEF PROTOCOL OF RABBIT NO. 23669 II INOCULATED INTRAVENOUSLY WITH 5 C.C. OF CULTURE NO. 23669 * (300,000,000 CELLS)

Date	Activity	Weight Grams	Temperature	W.B.C.	N.P.N.
	Clinical Course Before Inoculation				
12-30-31	Well nourished and active		102.4	11,000	
12-31-31			104.0	13,000	39.5
1- 1-32			102.4	9,300	
1- 2-32			102.4	9,500	
1- 4-32		2,275	102.4	11,000	
	Clinical Course After Inoculation				
1- 5-32	Hunched, did not eat		105.6	12,600	
1- 6-32	Did not eat; appears ill	2,270	104.6	12,600	
1- 7-32	Ate; more active	2,300	104.6	12,200	44.5
1- 9-32		2,225	104.0	15,000	
1-10-32	Appeared well		104.0	17,100	
1-11-32		2,325	103.4	14,500	
1-12-32	Well and active		103.0	13,600	
1-13-32	Killed with chloroform	2,440	103.0	12,600	41.0

* *M. candida*

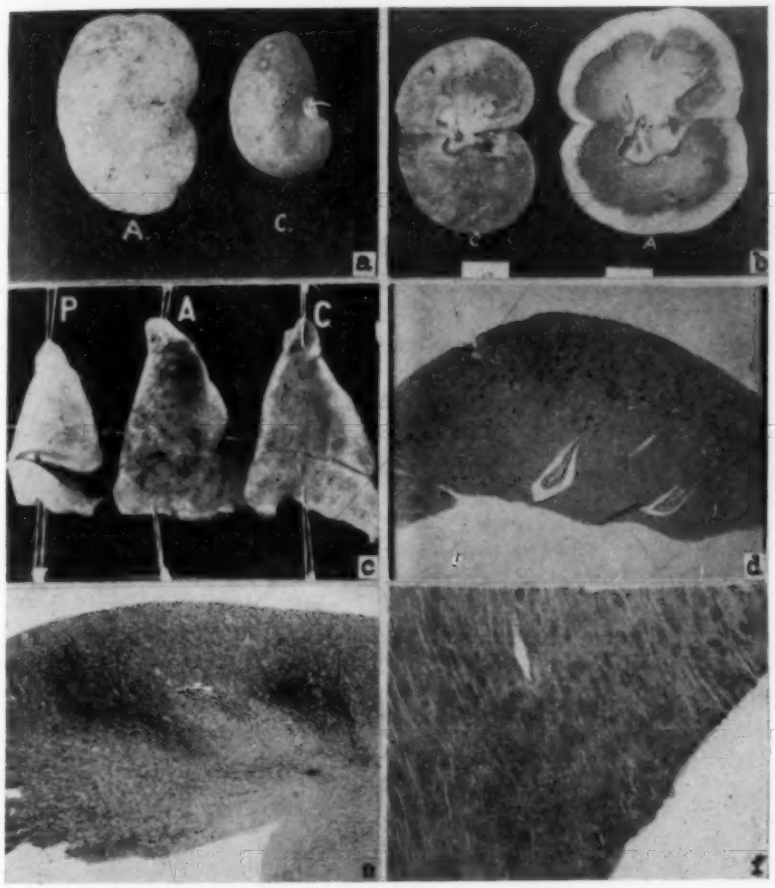

FIGURE I

a. A: *M. albicans* infected kidney; weight of rabbit, 1,585 gm.; inoculated intravenously with 62 million cells; killed on 5th day.
C: *M. candida* infected kidney; weight of rabbit, 1,665 gm.; inoculated intravenously with 229 million cells; killed on 9th day.

b. A: *M. albicans* infected kidney; weight of rabbit 1,820 gm.; inoculated intravenously with 54 million cells; died on 8th day.
C: *M. candida* infected kidney; weight of rabbit 1,855 gm.; inoculated with 229 million cells; killed on 13th day.

c. Differential characteristics of lungs of rabbits inoculated intravenously with three species of monilia and killed 6 hours after inoculation.
P: *M. parapsilosis,* dose 3,000 million cells, very rare petechial hemorrhage.
A: *M. albicans;* dose 60 million cells; numerous petechial hemorrhages.
C: *M. candida;* dose 275 million cells; few petechial hemorrhages.

d. Kidney of rabbit inoculated intravenously with 50 million *M. albicans* cells and killed 2 days later. Miliary abscesses in cortex.

e. Kidney of rabbit inoculated intravenously with 335 million *M. candida* cells and killed on the 19th day. Wedge shaped granulomatous areas involving medulla and lower zone of the cortex.

f. Miliary abscesses in skeletal muscle (thigh muscle). Rabbit died on 4th day after intravenous inoculation with *M. albicans.*

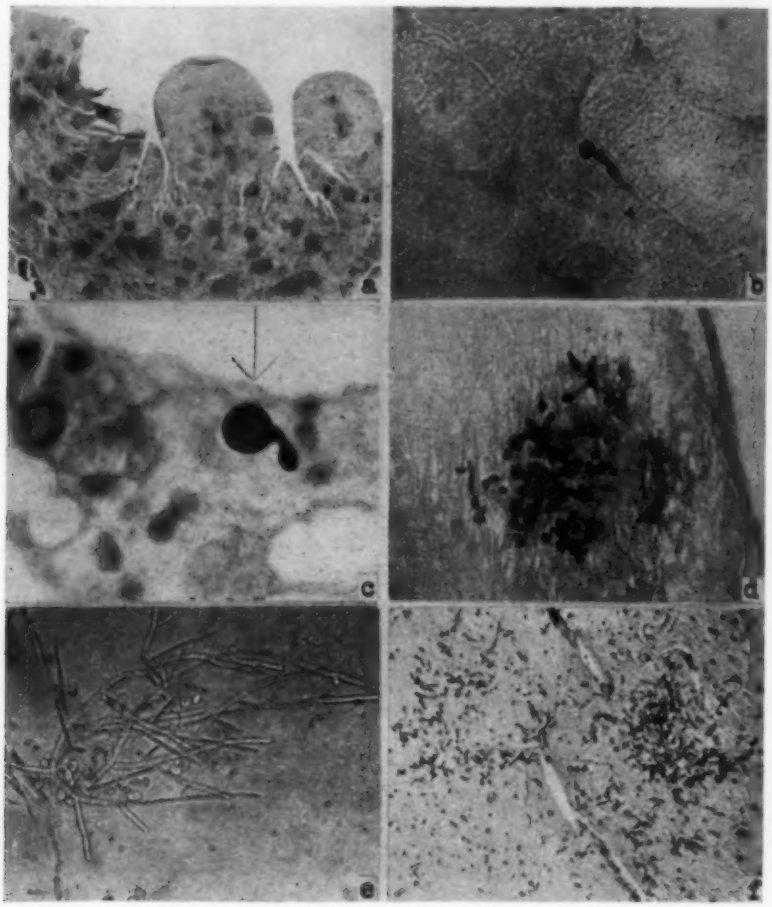

FIGURE II

a. Myocardium of rabbit inoculated intravenously with 25 million *M. albicans* cells. Killed on the 5th day.
b. Early formation of a mycelium with terminal conidia in the intertubular capillary of the kidney. Rabbit killed 4 hours after intravenous inoculation with *M. albicans*. Gram stain.
c. Budding *M. albicans* in alveolar wall of a rabbit's lung. Gram stain.
d. *M. albicans* lesion in gall-bladder wall of a rabbit inoculated intravenously. Budding cells and elongated forms. Gram stain.
e. Bile aspirated from the gall-bladder of a rabbit inoculated with *M. albicans* into the left kidney. Luxuriant growth of mycelia.
f. Budding cells and mycelia in brain lesion. Rabbit inoculated with *M. albicans* locally into left kidney. Died on 4th day. Gram stain.

skeletal muscle (Figure Ib), brain (Figure II,f) and spleen and lungs. The striking thing is that in spite of this widespread manifestation of infectivity of this organism the liver rarely showed lesions. This organ appears to be highly resistant to infection although the gall bladder often was the site of abscesses (Figure II,d) and the bile nearly always contained abundant yeast-like cells and much long mycelium (Figure II,e).

The intensity of the reaction was revealed more clearly in the kidneys and lungs. The kidneys were 2 to 2½ times normal size, the capsule was tense and the surface appeared greyish white and granular, due to numerous pinhead to pinpoint size abscesses (Figure I,a). The cut surface showed the cortex to be markedly thickened and whitish in appearance due to numerous small abscesses. The medulla was deeply congested and contained only a few small abscesses (Figure I,b). –

The lungs were characterized by numerous sub-pleural petechial hemorrhages (Figure I,c). The cut surface also showed some small hemorrhagic spots and thrombosis of the large vessels was occasionally seen; 8 per cent of these animals died of pulmonary thrombosis.

The lesions produced by *M. candida* were so much fewer and less intense in reaction that after a few post-mortems we could distinguish the species of organism with which the animal had been inoculated without consulting our notes.

The lungs revealed in the case of the *M. candida* animals relatively few sub-pleural hemorrhages (Figure I,c) and the kidneys showed no increase in size; the surface contained only an occasional small abscess (Figure I,a). The cut surface revealed a cortex which was not thickened and contained only an occasional small wedge-shaped greyish-white area which extended through the medulla (Figure I,e). The medulla contained a few greyish-white areas but did not appear congested. No other tissues or organs contained lesions.

From this description of the gross pathology one cannot escape the strong suggestion that the process is primarily thrombotic, but that it is purely thrombotic does not seem likely. For instance, why do the arterioles of the glomeruli of the kidney collect the fungus cells in the case of *M. albicans* and not those of *M. parapsilosis* or *M. candida?* Why does *M. albicans* produce lesions in the arterioles of the skeletal muscles and the other 2 do not? Why do the capillaries of the liver escape the plugging effect of even albicans? These questions we undertook to answer by a determination of the relative size of the cells of organisms of the 3 groups, and by a determination of the growth capacity of the 3 species within the animal body. The result of determination of the size of the cells is shown in Table II.

It is apparent that there is not sufficient variation in the size of the cells to explain the difference in the species virulence. While it is true that *M. parapsilosis* has cells which average slightly smaller than either albicans or candida, still candida has an average cell size larger than albicans. It is apparent, therefore, that the difference in the size of the cells does not offer

TABLE II

Type	*Culture Number*	*Largest* micra	*Smallest* micra	*Average* micra	*Total Average* micra
	50858	7.1	2.1	4.5	
I	35221	7.1	2.1	4.73	4.63
	38746	6.0	3.2	4.65	
	4135	12.0	2.8	6.1	
II	801	9.7	2.4	6.0	6.03
	33691	9.5	3.1	6.0	
	750	9.9	3.4	6.4	
III	14999	8.7	4.2	6.43	6.37
	23669	11.0	3.0	6.29	

an explanation for the difference in infectivity of the organism and that the process cannot be entirely thrombotic.

To investigate still further the significance of the size of the cells in the pathology of the experimental disease we next made up suspensions of the different species in normal salt solution and killed them with formaldehyde. When they were proven to be dead by culture the cells were again measured and intravenous injections done. This experiment resulted in no illness in any animal and post-mortem examinations revealed no gross lesions. The microscopic examination of these tissues revealed no reactions of even a mild type.

At this point we felt certain that simple thrombosis as an explanation of our post-mortem findings had been ruled out but so far we had no positive explanations to account for the pathology. We now undertook to determine the growth capacity of 3 species in the animal body. We expected that we might be able to accomplish this demonstration by making blood cultures and urine and bile cultures of animals killed at intervals varying from 2 hours following the injection up to 6 days. We expected that if one species showed a greater capacity for reproduction in the blood stream than another, the organism showing the least capacity would disappear from the blood stream first, that urine and bile cultures would show fewer positive results and, further, that Gram stain of the microscopic sections of the tissues would reveal in the case of the most vigorous reproducers more abundant mycelium. Table III illustrates the results.

It is apparent from this table that *M. parapsilosis* died very shortly after introduction into the blood stream; that *M. albicans* remained in the blood stream as viable organisms for a comparatively long time and showed evidence of being able to invade tissue by its appearance in both the urine and bile. The milder property of *M. candida* in these particulars is indicated by the much lessened frequency with which it appeared in the urine and bile and its inability to maintain itself for as long a period in the blood stream. This difference was still further substantiated by the examination of tissue removed at varying intervals following injection. *M. parapsilosis* showed, shortly after inoculation, signs of degeneration by the appearance of Gram-positive bodies in the tissue which were beginning to break up and it was never possible in these tissues to demonstrate either budding forms or mycelium. *M. albicans*, on the other hand, demonstrated vigorous powers of reproduction in the capillaries by the appearance in sections of tissue removed at 2 and 4 hours of many budding forms of Gram-positive fungi and frequent strands of mycelium, and as the disease progressed mycelium became more abundant. (Figure II, b and c.) *M. candida* showed Gram-positive yeast-like cells some of which were budding but it never produced mycelium.

Our next experiments were designed to test the evidence obtained that *M. albicans* alone of these organisms was able to invade tissue. Animals were injected subcutaneously, intra-muscularly, intra-pleurally, and into the nasal

TABLE III

	M. parapsilosis	*M. albicans*	*M. candida*
Septicemia	None	Always	Rarely
Blood cultures	Positive up to 18 hours	Positive 2 to 4 days	Positive up to 36 hours
Urine cultures	Negative throughout	Positive 95%	Positive 35%
Bile cultures	Negative	Positive 50%	Positive 2%

TABLE IV

Number	*Source*	*Clinical Description of Case and Remarks*
		Type I M. parapsilosis
35221	Sputum	Mild but persistent bronchitis. Sputum repeatedly negative for tubercle bacilli. Wassermann negative. No further report.
38746	Sputum	Male, age 40, farmer; lost 15 lb. weight; sick 3 years; 2 oz. of sputum in 24 hours. Wassermann negative; sputum negative for tubercle bacilli. Died. No autopsy.
M. parapsilosis		Furnished by J. H. Lamb, Johns Hopkins University, Department of Pathology.
50858	Sputum	Male, age 36, a laborer. Four months before pulmonary symptoms had ringworm on cheek; sick 2 years; X-ray diagnosis: interlobar empyema or abscess. Reported year later blastomycosis from another laboratory. Sputum negative; Wassermann negative. Recovered.
36255	Sputum	Chronic bronchitis. No response to inquiry about patient.
		Type II M albicans
33691	Sputum	Male, age 45, sick 2 months; sputum negative for tubercle bacilli; severe cough; large ulcer on soft palate, upper and lower lip; fungus in sputum, and fluid from ulcers on lips; dullness over lower right chest posteriorly and anteriorly. Died. No autopsy.
22353	Sputum	Male, age 35, mild bronchitis with elevation of temperature for 2 months. Recovered.
4135	American Type Culture	M. pseudo-tropicalis Castellani.
2112	American Type Culture	M. albicans; Natl. Coll. Type Cul., Lister Institute, 714. Isolated by Craik from case of thrush.
2117	American Type Culture	M. psilosis Ashford. Natl. Coll. Type Culture Lister Inst. From J. T. Duncan, London School for Trop. Medicine. Isolated from feces of acute case of sprue.
		Type III M. candida
23669	Sputum	No record of patient.
14999	Buccal mucosa	Membrane covered the mucosa of the cheek, gums and lips to the edge of the skin. Thrush. Patient anemic; membrane present 1 year.
2113	American Type Culture	M. candida Bonorden. Natl. Coll. Type cultures; Lister Institute, 922, Tanner Collection.
1369	American Type Culture	C. Neuberg, Berlin, Germany (Bonorden Handb., p. 76, Fig. 86, 1857) Thom and Church collection, 4472–2.
750	American Type Culture	M. tropicalis Castellani; Aldo Castellani, Tulane Univ., isolated 1909.

accessory sinuses with standard doses, already described, of *M. albicans* and *M. candida*. *M. parapsilosis* was not used in these experiments since it had been shown that even in large intravenous doses it had no pathogenicity.

The subcutaneous inoculations of *M. albicans* cultures resulted in abscesses which healed in 10 to 12 weeks. The injections into muscle, pleura, and nasal sinuses resulted in septicemia and multiple lesions throughout the body, particularly the kidneys.

M. candida cultures produced by these methods of injection neither local nor general reactions.

The cultures used in these experiments are described in Table IV.

We selected these cultures because of their association with certain clinical manifestations in human cases and because some of them are well known in the literature. The classification as *M. parapsilosis, M. albicans* and *M. candida* is our own and was arrived at by methods previously described. As already indicated under the discussion of dosage arrived at by cell counts in a hemocytometer, individual cultures of *M. albicans* vary somewhat in virulence but never so much as to be at all confusing with the other species of lower virulence, *M. candida* or with *M. parapsilosis*, which showed no pathogenicity for rabbits. We made no attempt to step up virulence by animal passage before using the culture in an experiment. It is apparent that some of these cultures have been cultivated on artificial media for many years; *i.e.*, culture No. 4135, American Type Culture Collection, *M. pseudo-tropicalis* Castellani, was one of the most virulent cultures we used; killing in smaller doses and causing more widespread lesions when inoculated locally into various tissues. Our own cultures had been on artificial media for 5 or 6 years without animal passage.

SUMMARY

In our experience, and from what we can get from the literature, *M. albicans* appears to be the organism most frequently associated with human cases of moniliasis. Many organisms described as different species of monilia have in our hands proved to be cultures of *M. albicans*. The animal experiments reported in this paper demonstrate that organisms belonging to the species of which *M. albicans* is typical are the only ones which can multiply vigorously in the animal body and invade tissue. Although the organisms of which *M. candida* is typical *have* shown some feeble power of reproduction in the animal body they have demonstrated a very low degree of virulence, and this no doubt accounts for the frequency of *M. albicans* in the case reports found in the literature. Organisms of the *M. parapsilosis* species have shown no pathogenicity for rabbits.

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Vitamin G Deficiency*

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GOLDBERGER and Lillie [1] were the first investigators to describe the pathological condition in the rat due to a deficiency of what is now termed vitamin G (B_2). They observed the following symptoms as characteristic of a deficiency of the newly discovered vitamin, then only recently differentiated from vitamin B: arrest of growth, sticking together of the eyelids with an accumulation of dried secretion on the lid margins, and loss of hair from various parts of the body which sometimes resulted in nearly complete denudation. Some of the animals later developed a dermatitis on one or more of the following sites: ears, neck, chest, legs, or paws. Some animals showed a linear fissuring or ulceration of the angles of the mouth and a lesion on the tip of the tongue.

Other laboratories [2, 3, 4, 5, 6] soon confirmed the general findings reported by Goldberger and Lillie.

Several years ago, we observed that, in addition to the symptoms previously reported, young rats given a vitamin G deficient diet developed a whitish appearance of the eyeball in a large percentage of cases. Examination with the ophthalmoscope revealed the presence of keratitis (opacities in the cornea) and cataract, and histological sections of such eyes confirmed the diagnosis.[7] Using our dietary regimen, two other laboratories [8, 9] have obtained similar results. In order to determine whether this new deficiency manifestation was peculiar to the rat or general for all species, we extended our experiments to mice [10] and chicks [11] and have found cataract resulting from vitamin withdrawal. We are now obtaining similar results with monkeys.

Cataract is any opacity of the lens of the eye or of the lens capsule. In order to make subsequent discussion clear I give briefly the anatomy and pathology of the lens. It is a biconvex transparent body, the function of which is to focus the image of objects upon the retina. The capsule is a homogeneous transparent membrane which covers the entire surface. The lens proper is built up of long, transparent, ribbon-like or prismatic bodies known as lens fibers. Each lens fiber is disposed along a meridian of the lens, and extends from its anterior to its posterior hemisphere. In addition, the lens contains a layer of cells over its anterior surface and just under the capsule—the lens epithelium. These are the only cells capable of regeneration. Their function is to lay down successive layers of lens fibers during growth. Mechanical injury, certain diseases, and some toxic materials cause opacities. The lens is non-vascular, and obtains nutriment by diffusion from the aqueous humor, which lies anteriorly, and is in direct contact with the lens capsule.

Aside from inflammatory changes that may occur only when the capsule is broken, the pathological changes pos-

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sible within the lens are extremely limited. Friedenwald[12] classifies these as follows:

1. Sclerosis of the lens fibers, which in extreme cases causes impairment of vision.
2. Autolysis of lens fibers, characterized at first by shrinkage of the fibers with the formation of fluid filled clefts, and later by swelling and digestion of fibers, with the formation of amorphous or crystalline precipitates, which, together with fragments of unaltered lens fibers suspended in a fluid of high protein content transmit light very poorly.
3. Proliferation of the anterior lens epithelium, which sometimes forms a dense membrane many cells deep.

The cataracts we have found resulting from vitamin G withdrawal have been characterized in histological section by the two latter changes, that is, autolysis of lens fibers, and proliferation of the lens epithelium (Figure I).

These nutritional cataracts have been prevented by yeast, autoclaved yeast, liver, kidney, and other meats, milk powder, and a wide variety of other foods containing vitamin G. In fact, wherever definite growth has been obtained in a vitamin G assay, cataract has failed to appear. Wherever rats have failed to grow in a vitamin assay, as in negative controls or in animals which received foods deficient in vitamin G, cataract has developed. It appears, therefore, that for our strain of rats, stock diet, method of care, and deficient diet, the growth promoting vitamin that we are dealing with is the same as the cataract preventive vitamin.

The feeding of a vitamin rich diet to animals which have developed the disease results in a gradual clearing up of all the general and ocular manifestations except the cataract. The opacities in the cornea tend gradually to disappear. New hair appears on the eyelids, the animal in general puts on a new coat of hair, and develops an apparently normal health and vigor. The lens opacities do not disappear, however, as there is no mechanism for the repair of damaged lens fibers (Figure III).

Numerous investigators have observed an ophthalmia as one of the characteristic signs of vitamin G deficiency in the rat.[1, 2, 3, 4, 5, 6] Of all these investi-

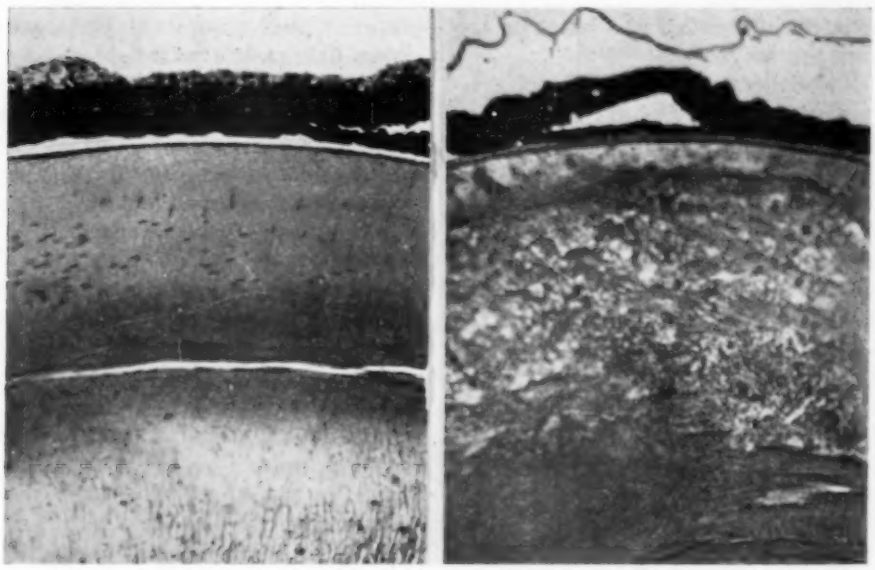
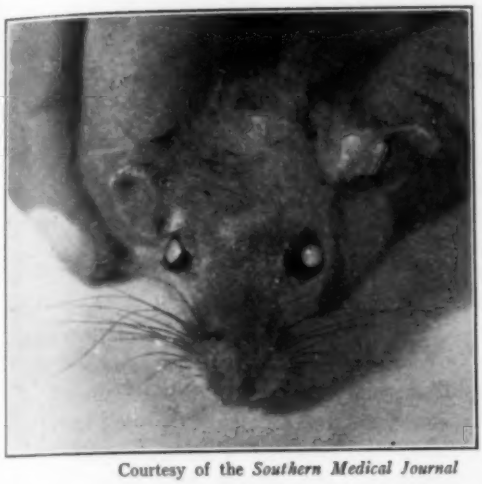


FIGURE I—Microphotographs of sections of normal and cataractous lenses of Norway rats. A—Normal lens; B—Cataract resulting from vitamin G deficiency.



Courtesy of the *Southern Medical Journal*

FIGURE II—Photograph of a Norway rat showing cataract resulting from vitamin G deficiency.

gators, Salmon, Hays, and Guerrant [3] alone mentioned an opacity of the eyeball. They believed, however, that the opacity centered in the vitreous humor but sometimes invaded the lens.

The question arises: why, if cataract is such a constant accompaniment of vitamin G deficiency, has it not been observed more generally? There are probably several reasons. Even under the most favorable conditions for the appearance of lens changes, *gross* cataract frequently does not appear until after the 70th day. Consequently, if the animals were kept for an 8 or 10 week period only, the cataract might easily be overlooked. Before the gross manifestations of cataract appear, there is frequently a sticky exudate which seals the lids, and only by forcing them open does the cataract appear, so it might easily go unnoticed unless one were looking especially for it. It is also quite possible that in other laboratories, because of different nutritional history, different vitamin deficient diets, and with other methods of care, rats do not develop cataract on G-deficient diet.

As we have been using cataract as a criterion of vitamin G deficiency in our negative controls, we have naturally chosen those conditions of diet, age and size of animals, size of litters, etc., which would produce cataract with the most regularity and at the earliest age. Therefore, it is not surprising that we have found and reported cataract in a higher percentage of cases than have other laboratories. It is possible that with our experimental regimen we are dealing with one deficiency, and laboratories that have not observed cataract are dealing with a deficiency of some other vitamin.

Are these experimental cataracts due to lack of vitamin G, or some other vitamin? This may depend upon the definition of vitamin G accepted. The cataract preventive vitamin is stable to autoclaving, is soluble in water and dilute alcohol, and insoluble in strong alcohol. The cataract results from a deficiency of vitamin G then, if vitamin G is defined as the relatively heat-stable water—and dilute alcohol-soluble vitamin or vitamins. To those who limit the use of "G" to denote the dermatitis preventive factor, cataract may or may not be due to vitamin G deficiency. Superficially considered, it might seem improbable that the dermatitis preventive factor and cataract preventive factor could be identical. On more careful consideration, however, it seems not only possible but quite probable. The lens is derived embryologically as an invagination of the body-wall ectoderm, and thus is derived from the same germ layer as the skin. Friedenwald says: "The structures most nearly related to it are the hair and the nails." [12] It is therefore not unreasonable to suppose that a deficiency which results in changes in the skin might also produce pathological changes in the lens. It seems that vitamin G deficiency affects chiefly tissues of ectodermal (body-wall) origin: skin,

lining of the mouth, conjunctiva, cornea, and lens.

Although it appears quite probable that both dermatitis and cataract are due to the same deficiency, there is the possibility that cataract and the other ocular changes result from a deprivation of one of the newer and less well known vitamins, of which there appear to be several. Harris,[13] in 1931, listed 17 new factors of the vitamin B group reported up to that time, and several similar reports have appeared since.

It would appear that, in working with the multiplicity of factors in the vitamin B complex, investigators have given more attention to evidence based upon growth than to that based upon pathological manifestations. Growth can be accurately measured, averaged, and the results statistically analyzed, while it is difficult to give a quantitative statement of the degree of pathological change, such as the extent of dermatitis. For this and other reasons, much of the evidence for the existence of the many new vitamins is based upon growth alone. Chick and Copping[14] recognized this in 1930:

> Much difficulty and uncertainty in this field of work is due to the fact that, except in work on the antineuritic vitamin B_1 and to some extent in that on the antidermatitis vitamin B_2, the criterion for presence or absence of these various B vitamins has been the growth (increase in weight) of a rat or pigeon. . . . Advance in this field of work would be much helped if the physiological rôle of the various members of the group were elucidated and the pathological condition following deprivation recognized.

For this reason alone I feel that the cataract which results from a deficiency of a relatively heat-stable vitamin deserves the attention of workers in this field. If cataract results from a deficiency of one of the new vitamins, it is a definite and unmistakable sign to be looked for as evidence of such deficiency. If cataract and keratitis result from the same deficiency as dermatitis, we have another and perhaps better criterion of the deficiency. In fact, dermatitis would seem to be an unsatisfactory evidence of vitamin G deficiency, since Sherman and Sandels[5] found that it occurred more frequently when there was a small amount of vitamin G present in the diet.

Courtesy of the *American Journal of Ophthalmology*

FIGURE III—Photograph of an albino rat showing cataract in the left eye as a result of vitamin G deficiency. In this case cataract developed in the left eye first, after which time vitamin G was added to the diet, preventing the development of cataract in the right eye.

In a large series of animals which we have recently followed by weekly ophthalmoscopic examinations,[11] keratitis and cataract were the *first* pathological signs observed, excepting alopecia. In some cases cataract preceded the loss of hair. It is quite probable that there were changes in the skin coincident with the changes in the cornea and lens, but due to the structure of the skin, pathological manifestations are not readily evident until far advanced. On the other hand, the lens is a transparent tissue in which very early changes can be seen with the ophthalmoscope without injury to the animal, and with which the daily or weekly progress of the disease can be followed closely.

In order to make pathological records of skin changes comparable to those we keep on rats' eyes, it would be necessary to kill representative animals at weekly intervals, fix and section portions of the skin, and examine with a microscope. In proposing the ophthalmoscope as a new tool for the vitamin biochemist we are suggesting a technic that is simple and rapid.

Good ophthalmoscopes, entirely satisfactory for animal work, are obtainable at less than half the price of an ordinary microscope. A few weeks' experience will enable the research worker to distinguish the various stages in the pathology of the cornea and lens of experimental rats on vitamin G deficient diet.

What is the application of these experimental findings to human cataract? We are becoming increasingly confident that cataract may be expected wherever there is an inadequate intake of vitamin G. All animals with which we have experimented, from chicks to monkeys, have developed cataract as a result of such a deficiency. If man does not, he would appear to be the exception. As the human requirement for vitamin G is not known, it is impossible to state whether any given human dietaries are deficient enough in this factor to produce cataract.

Clinical cataract results from a number of causes. Two types—congenital and so-called senile—are of obscure etiology. It would seem possible that at least some of these so-called senile cataracts might be the result of vitamin G deprivation. The general appearance of the rat given a subnormal amount of vitamin G, Sherman[15] describes as a picture of "premature senility." He says: ". . . so a liberal intake of vitamin G contributes to a better than average nutritional condition and thus to what McCollum and Simmonds have aptly termed 'the preservation of the characteristics of youth.'" Sherman and Smith[16] state: "The significant improvement in longevity found by Sherman and Campbell resulting from improving a diet already adequate . . . is probably due in part to the higher content of vitamin G. . . ." With such observations upon the picture of premature old age resulting from vitamin G deficiency, and the preservation of youth and increased length of life resulting from a liberal intake of vitamin G, it is possible to make out a plausible case for a possible relationship between vitamin G deficiency and senile cataract. Friedenwald says: "(senile) cataracts may, then, be related to the falling out and blanching of the hairs and to other similar senile changes in epidermal organs."[12] In the light of this statement it seems more than a coincidence that, in our experimental animals, we find a falling of hair and early cataractous changes occurring almost simultaneously.

A discussion of cataract and vitamin G deficiency would not be complete without mentioning pellagra. Cataract does not appear to be any more prevalent among pellagrins than among non-pellagrins of the same age, occupation,

and social class. If experimental cataract is the result of a deficiency of the dermatitis preventive vitamin *per se*, this would argue against the identity of the pellagra preventive and the rat dermatitis preventive factors. It is possible, of course, that pellagra and cataract both result from the same deficiency under slightly different conditions. It may be that pellagra results from a partial deficiency, while cataract results from a more complete deprivation of the same vitamin. A somewhat analogous condition is met with in our experimental animals; diets free enough of vitamin G to produce cataract do not cause the ulcerative type of dermatitis. Under these conditions alopecia is about the only consistent evidence of dermatitis. With less complete freedom from vitamin G, distinct scabby ulcers appear on the skin, but the development of cataract is greatly delayed (Cf. Sherman and Sandels [5]).

In discussing the bearing of the cataract of vitamin G deficiency upon the etiology of pellagra, it is premature to do more than suggest possibilities. Although cataract as a symptom of G-avitaminosis seems to add one more unanswered question to the pellagra problem, it is hoped that it will ultimately aid in the elucidation of this important question.

Although vitamin G withdrawal does not result in such rapid and dramatic changes as some other deficiencies, such as in the case of vitamin A, a deficiency that results in such marked and *irreparable* damage to such a highly specialized tissue as the lens, should not be considered lightly.

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Child's Sleep—Effect of Certain Foods and Beverages on Sleep Motility*

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THE importance of diet both in the treatment of disease and in its prophylaxis is now commonly accepted. The advances made in this field in the deficiency diseases, the vitamins, the anemias, and arthritis, reflect but a few of the problems under investigation. What further etiological factors of disease will be traced to faulty diet and dietary habits is a matter of interesting speculation.

We have attempted a study of a very homely problem. What is the effect of various foods and beverages on sleep? This problem has been of particular interest to us as to its effects on children. When should the school child eat its heaviest meal—at noon or at night? Certainly in the average American home the heaviest meal is served in the evening between 6 and 7 p.m. In most instances the school child has been put to bed within 2 hours after this meal is completed. What effect, if any, does this have on the child's sleep? In many homes immediately before retiring the child (and frequently the adults too) will take some food—a glass of milk or orange juice or a plate of ice cream. What effect does this bedtime food or drink have on the child's sleep? Many have speculated, both advocating and condemning this practice, but, so far as the literature reveals, there has been no rigid investigation to give an answer. Our sleep studies were begun nearly two years ago at an isolated school in the mountains of North Georgia. These studies are still in the process of completion and this paper is in the nature of a preliminary report. We have used 42 children in making the study, varying in age between 9 and 14 years. The children are equally divided as to sex. So far, we have graphic records of about 90,000 hours of sleep under controlled conditions.

Each child that is used as a subject is examined physically and such laboratory tests as basal metabolism, electrocardiogram, urinalysis, blood count, and examination of stool for intestinal parasites, are made. Children with organic defects were not accepted. Those showing remediable conditions, such as diseased tonsils, teeth, hookworm, and the like, were treated and then admitted. We made every effort to be sure we were dealing with normal children. On account of the isolated location of the sleep laboratory, such extraneous influences as automobiles, street cars, and trains did not constitute a problem. The sleep laboratory itself consisted of two very large halls, each amply accommodating 12 beds—one hall for males and one for females. Beds, springs, mattresses, pillows, and bed clothing were identical for each child. The amount of bed covering was determined, on retiring, by the nurse in

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charge. The children retired each night at 8:30 and arose at 5:30 a.m. Care was taken that all retired at the same minute and lounging on the bed before this time was not allowed.

During the first 3 months of this investigation, as has been previously reported,* the children were observed at 15 minute intervals by the nurses to determine how they were sleeping. It seemed to us that change of position might be used as an index to the character of the child's sleep. For recording this we devised a form using symbols for the various body positions so that the nurses might rapidly fill this in as rounds were made, and the total number of changes of position computed the following morning, thus determining whether or not the child had had a normal or a restless night. It is evident that in using this method of observation only gross changes of position could be determined, that many minor muscular movements occurring under the cover eluded detection. For this reason in September, 1932, we changed to the electrically recording hypnograph.

METHOD AND APPARATUS FOR RECORDING SLEEP MOVEMENTS

The machine which we are using for recording sleep was originally described by Renshaw and Weiss.[1] In brief, the principle involved is as follows: The bed mechanism attached to the bedspring consists of a perpendicular piece of metal containing alternate inserts of bakelite and brass. A small brass wheel travels up and down this piece which makes or breaks an electric contact with the slightest movement of the individual occupying the bed. This contact is conducted through cables into an adjoining room in which is placed the hypnograph itself. The hypnograph consists of a battery of 24 stylus pens (one for each bed) which write upon a uniformly travelling roll of paper, 8 inches broad. Two colors of ink are used in the pens, one for the males and another for the females. As this paper passes under the pens it is stamped electrically by a timer at 1 minute intervals, so that at the end of a night's observations this can be ruled out 60 minutes to the hour and each body movement accurately recorded, minute by minute, for the entire 9 hours, or 540 minutes, that the child is in bed. As the contacts are made or broken by the bed mechanism, electro-magnets on each pen of the hypnograph make offsets from the base line on the record. Beside the hypnograph are relay boxes so arranged that if the circuit through any bed ceases functioning properly, the signal lamp will light and remaining burning until the condition is corrected. Thus should an individual leave his bed for any purpose during the night, the relay lamp will at once notify the operator of this fact.

At the end of each night's observations the active minutes, that is, any minute during which a sleeper makes any movement, are counted, hour by hour, and recorded for each of the 24 individuals, the total number of active minutes being entered at the end of the night. From this record the observations are copied daily onto the individual's record.

That we may properly evaluate the measurement of sleep movement as an index to the depth of sleep, let us review briefly the results of some prior investigations.

Kohlschutter[2] some 70 years ago, using auditory stimuli, showed that the depth of sleep was reached quite early in the night. Later this was confirmed by Michelson.[3] These observations and ours seem in general to agree, as certainly in children, at least, sleep is more quiet in the second 30 to 60 minutes after

* Read before the Section on Pediatrics at the Eighty-fourth Annual Session of the American Medical Association, Milwaukee, June, 1933.

a child has retired than at any other part of the night. Canestrini [4] observed as a criterion of awakening slight movements and changes in the type of breathing. Kussmaul [5] showed that in young infants, stimulation by light caused a tightening of the eye lids. Using this as a confirmatory index of the depth of sleep, Renshaw [6] has recently shown that immediately before and immediately after body movement, the amount of light stimulation necessary to cause lid tightening was very much less than when no sleep movements were present. It is an assumption, therefore, that the depth of sleep is immeasurably lighter at the time that a movement is made. Further work is in progress on this point.

NORMAL SLEEP PATTERN

In an attempt to arrive at what constitutes the normal sleep pattern we used 15 consecutive nights in which the 24 children had followed their normal daily routine. This normal sleep pattern which we used is based on a study of 3,240 hours of normal sleep. Considering the children from an individual standpoint, we can say that, except in a very general way, no two children have the same sleep curve. The first hour in bed is the most active hour and the next most active hour is the last regular hour of sleep. In a vast majority of children the quietest sleep is reached the second 30 to 60 minutes after going to bed. As a concrete example, if a child retires at 8:30 p.m. and arises at 5:30 a.m., it will show more restlessness—more active minutes—between 8:30 and 9:30 p.m. and 4:30 and 5:30 a.m., than in any other 2 hours of the night. Aside from this, generalities cease, and what may be quite normal for one child, may be distinctly abnormal for the second child, assuming both to be normal children. These facts apply equally to males and females.

The graphs presented are plotted on ratio paper. We believe that the trend may be more readily seen by using this method. The hours of sleep are listed at the top of the graph with a scale showing the active number of minutes to the left of the graph: the lower limb of the graph shows the body movements, hour by hour, of the child or children under observation and the upper limb of the graph is a summation of the minute movements throughout the night. The resultant curve we refer to as the child's sleep pattern. Once established this curve rarely varies except with the seasons or the introduction of experimental conditions. We have observed that, as a sex, females are sounder sleepers than males, not only do they get to sleep more quickly, but sleep more quietly throughout the night.

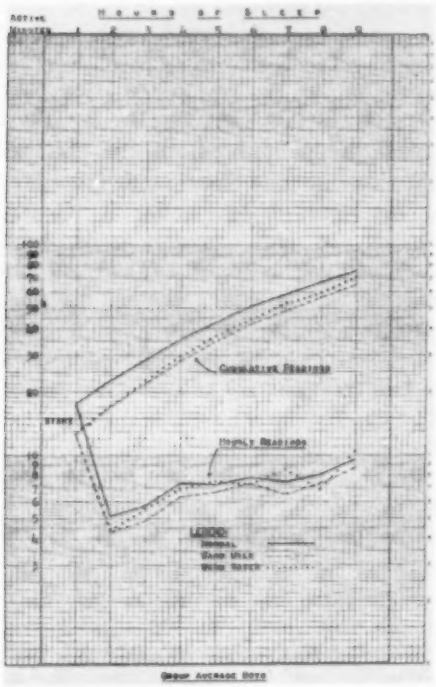
THE EFFECT OF CERTAIN BEVERAGES ON SLEEP

Among other studies made we have collected certain data on the effect of cold water, cold milk, warm water, warm milk, a cold beverage containing 0.6 gr. caffeine, and orange juice. We will present on graphs the group averages both on boys and on girls. Twelve children, equally divided as to sex, were used in each experiment.

It has long been thought that the drinking of certain beverages at bedtime might induce sleep. The administration of a glass of warm milk to neurasthenics on retiring has long been a therapeutic practice. If this beverage does induce sleep, would not the ingestion of the same amount of warm water at the same temperature produce the same result. In each experiment cited the beverage was given at 8:15 p.m. and the children were in bed and the lights out at 8:30. Each experiment was done on 5 consecutive nights. Figure I shows the group average for the boys.

FIGURE I

SHOWING EFFECT OF WARM MILK AND WARM WATER ON SLEEP PATTERN



In making an estimate of the significance of the results obtained it seemed wise to adopt the biometric method which is widely used, namely, that of determining the probable error. In explanation of the meaning of the probable error, it may be stated that it has long been a universal custom among biometric workers that the difference (or constant) which is smaller than twice its probable error is probably not significant, whereas the difference (or constant) which is three or more times its probable error is either "certainly" or at least "almost certainly" significant.[7]

In the case of the warm water experiment, the difference in the number of movements, before and after the experiment, was less than three times the probable error in 8.3 per cent of the children, was greater in the same percentage of the children and was less than twice the probable error in 83.3 per cent of the children, which, we assume, tends to show that in 83.3 per cent of the children the drinking of warm water on retiring had no effect whatsoever. On the nights on which the warm milk was received, it was seen that in 41.7 per cent of the children the activity was diminished; the movement was increased in 8.3 per cent of the children and in 50 per cent of the children there was no change noted. Thus, 41.7 per cent of the children slept definitely more quietly after the warm milk. A further experiment was done on 12 children, each receiving 6 oz. of cold water upon retiring for 5 consecutive nights. On the nights in which the cold water was received there was a decrease in 16.7 per cent of the children, an increase in 25 per cent of the children and in 58.3 per cent of the children there was no effect noted. This experiment was compared with the ingestion of cold milk on retiring for 5 consecutive nights to the same number of children. From a study of the results obtained it can be seen that from the standpoint of the probable error in 16.7 per cent of the children the activity was diminished; movement was increased in 8.3 per cent of the children and in 75 per cent of the children no change was noted whatsoever.

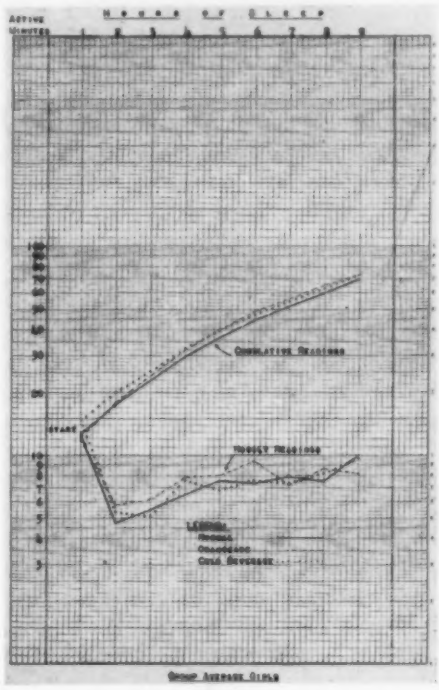
A concluding experiment was done in which 12 normal children received 6 oz. of a cold caffeine containing beverage on consecutive nights, the beverage containing 20 gm. sucrose and approximately 0.6 gr. caffeine. After determining the probable error on this series, it was shown that there was less activity in none of the children, an increase in 18.2 per cent of the children and in 81.8 per cent there was no effect noted. A companion experiment using 6 ounces of orangeade containing 20 gm. of sucrose was given to 12 normal children on consecutive nights. Deduc-

tions after determining the probable error on this series showed there was less activity in none of the children, an increased activity in 18.2 per cent of the children and in 81.8 per cent there was no effect noted whatsoever. Figure II shows the group averages for girls.

It is rather difficult to interpret these results properly. At the present time we have under way experiments collecting more data on these points. It seems fair to conclude, however, from the information we have now on hand that the administration of warm milk on retiring, which has been so long an empirical basis, is really effective. That this effect cannot be due to the temperature of the drink was shown by the fact that no such results were noted when warm water was substituted. That this was not due to the milk alone is shown by the fact that when milk was given cold, the results did not even approximate those obtained when given warm. It is assumed, therefore, that the warm milk effect must be a combination of both factors, that is, easily digestible and assimilable food given at a temperature approaching that of the body. Certainly, the administration of the other beverages named in no way seems to promote appreciably or to prevent sleep.

FIGURE II

SHOWING EFFECT OF ORANGEADE AND COLD CAFFEINE CONTAINING BEVERAGE ON SLEEP PATTERN



THE EFFECT OF FOOD ON CHILD'S SLEEP

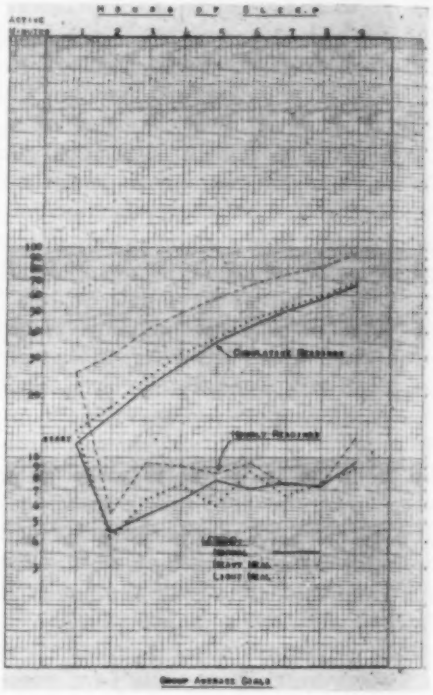
This experiment was done on a series of 24 children in order to determine what might be the effect on sleep of the taking of various types of evening meals. Three types of meals were used, first, a normal meal which consisted of a fruit, cereal or eggs, and bread and butter and milk; second, a very heavy meal made up of first a fruit, then a meat such as steak or turkey, several vegetables, including green and starchy, dessert, such as pie or ice cream, and 1 oz. of candy to each child; third, a very light meal consisting of simply a slice of bread and butter and a glass of milk. The evening meal was served always at 6:30 p.m. and the children retired at the usual hour of 8:30 p.m. From a study of these experiments with the heavy meal, sleep motility was found to be definitely increased in 23 out of the 24 children. The group average for girls is shown in Figure III.

As regards the light meal in comparison with the normal supper, it will be noted there was very little, if any, difference. On the average, the children went to sleep just as quickly with a light meal as they did with a normal meal and their general sleep movement throughout the night was practically unchanged. In the case of the heavy meals a very high percentage of the children showed a much greater increase

in movement than was seen after any of the beverage experiments. Expressed in terms of the probable error, it was found that after the very light evening meal sleep seemed to be promoted in 25 per cent of the children; restlessness was seen in 8.1 per cent and in 66.7 per cent of the children the meal seemed to have no effect. In the case of the heavy meal, from the standpoint of the probable error, none of the children slept as quietly; there was an increased restlessness in 58.3 per cent of the children and no effect was noted in 41.7 per cent of the children. This restlessness after a heavy evening meal was especially noticeable in the first hour after retiring and on the average extended practically throughout the night. In the case of the girls during only 1 hour did the sleep motility fall to normal, and with the boys, this fall was delayed to the 8th and 9th hour after retiring.

FIGURE III

SHOWING EFFECT OF HEAVY MEAL AND LIGHT MEAL ON SLEEP PATTERN



CONCLUSIONS

From the above we may conclude the following:

A child has a very definite individual sleep pattern.

The drinking of 6 oz. of warm milk at bedtime seems to produce quiet sleep in normal children.

Of the several other beverages tested none seems to affect sleep consistently. The ingestion of a beverage containing 0.6 gr. caffeine and 20 gm. sucrose proved to be identical in effect with the drinking of 6 oz. of orange juice containing the same amount of sugar.

The eating of a heavy evening meal by children between the ages of 9 and 14 years produces marked restlessness. In many cases the restlessness continued throughout the night. The eating of a very light evening meal differs in no respect from the sleep seen after a child has eaten its normal supper.

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Relative Values in Tuberculosis Case Finding Work

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NUMEROUS communities have recently undertaken tuberculosis case finding work by the method of making tuberculin tests of school children and examining the positive reactors with the X-ray. Some skepticism as to the value of this method (we shall call it the "tuberculin-X-ray" method in this article) has been voiced because the results are not so "productive" as the older method of confining the examination to contacts of open cases ("contact-examination" method). The two methods should be evaluated from a public health administration standpoint, but it is an error to try to balance one against the other with the idea of selecting one method to the exclusion of the other.

The first necessary step in the control of tuberculosis is the discovery of cases, for each case is a real or potential "carrier." In 1897 Dr. Hermann Biggs secured legislation requiring the registration of all cases of tuberculosis in New York City. This innovation met with bitter opposition but prevailed in the end, and the plan in one form or another has since been adopted by every state in the Union. The theory on which the reporting plan is based is that if all doctors report all cases that come to notice the health department will soon have a complete roster of all carriers of tuberculosis. Reporting is a vast net spread over the community to catch the disseminators of the tubercle bacillus.

In a previous article [1] some of the many holes in this net were pointed out. One conclusion was that, for the country as a whole, case reporting is less than 50 per cent complete. Even where case reporting is well done quantitatively its full qualitative value is not realized. For example, Plunkett [2] reported that in 1925, only 24.2 per cent of the tuberculosis cases known to the New York State Health Department were registered 1 year or more before death. To be sure, delayed reports, even those made after death, are valuable because they enable the health department to trace out contacts, but, assuming the infectious period of a case to average about 2 years, the delay in reporting three-fourths of the cases means that many people are exposed to the disease who might be spared that danger if reporting were more prompt.

By examining the contacts of known cases of tuberculosis we discover new cases. The system is like a chain letter, which, if it could be carried on without a break would ultimately reach the entire population. Tuberculosis and chest clinics appreciate the importance of contact examination. It is a tradition among them that when a case of tuberculosis is diagnosed every effort must be made to get all members of the household examined. How efficiently does the plan work in a well conducted clinic?

A study of the effectiveness of contact work was recently made by analyzing the records of the clinic patients of Henry Phipps Institute in

Philadelphia.[3] All patients who were diagnosed as tuberculous for the first time during a selected period of 18 months were designated as "original tuberculosis patients." These numbered 182, and the family record of each was reviewed 1 year after the date of diagnosis. This gave a picture of the success of 1 year's attempt to secure the examination of contacts. It was found that there were 647 contacts of which 308 (48 per cent) came to the clinic within the year after the date of diagnosis of the original tuberculosis patient.

Of the 308 contacts who did come for examination, 35 (11 per cent) were found to have tuberculosis. Obviously the contact examination work as carried on by this clinic was "productive"; for a clinic to discover in 1 year 35 cases of hitherto unknown tuberculosis, to say nothing of the more intangible beneficial results, is indeed commendable.

Reducing the above findings to round-number ratios we may say that for each 10 original tuberculosis patients known to the clinic there were: (a) 35 contacts, of whom (b) 17 were persuaded to come for an examination, of whom (c) 2 were found to have tuberculosis.

Excellent as this result is, it leaves much to be desired, judged by standards of administrative efficiency. Since more than half of the contacts failed to come to the clinic for examination, the disquieting question arises, how many of these are tuberculous? If the same ratio holds for them as for the group examined we may infer that for each 10 original tuberculosis patients there are among their contacts at least 2 undiscovered cases of tuberculosis.

Whatever its shortcomings contact-examination work probably exceeds in importance any other single measure in the tuberculosis program. But since it is not inclusive enough to be relied upon as our sole means of discovering cases, supplementary methods are, to say the least, desirable. One such measure is the routine examination of school children with tuberculin followed by roentgenographs of the positive reactors. The experiences of communities with this method are numerous and essentially similar. One of the latest reports is that of the Chadwick Clinics in Massachusetts.[4] Among children aged 15 to 19 years who were examined in 17 Massachusetts cities, pulmonary tuberculosis was found in 65 out of each 10,000 who reacted to the tuberculin test and who were X-rayed. This is in the ratio of 1 case per 154 examined by X-ray.

To indict the tuberculin-X-ray method as "unproductive" merely because it discovers only 1 case of tuberculosis out of each 154 X-ray examinations, whereas the yield of contact-examination work is 1 case out of 9 contacts examined, would be superficial and unjust. There are other considerations to be taken into account and other values to be compared, such for example as the relative costs of the two methods, the personnel required, and the equipment needed. Since these differences are at the present time difficult to calculate we may content ourselves with an enumeration of some of the values of the tuberculin-X-ray method.

1. Group tuberculin testing and X-ray examination of the reactors can be systematized so as to entail relatively little labor and expense. (X-rays in groups can be secured for as little as $.75 per case.)

2. The tuberculin-X-ray method aims not only to discover pulmonary tuberculosis of the adult type among children but also significant lesions of the childhood type. Hetherington[5] and his associates found significant lesions in 1.0 per cent of white boys 12 to 20 years of age; and 2.3 per cent of white girls of

the same age in a study of school children in Philadelphia. (The authors include in the grouping of "significant lesions" calcified lesions of the lungs or tracheobronchial lymph nodes, which may indicate heavy initial exposure to tubercle bacilli, and caseated lymph nodes, which represent a large tuberculous focus without evidence of healing and which lesions have grave significance until calcification has occurred.)

Generally speaking, the presence of childhood type lesions of whatever stage warrants the tentative presumption that the child has been exposed to mass dosage of tubercle bacilli. For the majority of children with childhood type lesions the serious danger confronting them is not the lesion *per se* but continued exposure if such exists. Until that question has been cleared up and until the contact, if it is established, is broken, the child is to be regarded as being in danger of developing serious tuberculous disease.

3. Discovering tuberculosis in children of the teen age is extremely valuable for it is at that time that the prognosis is most hopeful. The teen age sector is a strategic one because it is in the age period 15–25 that the tuberculosis mortality shows its sharpest rise. To prevent a case of tuberculosis is far better than to discover a case.

4. By means of the tuberculin-X-ray method many cases are discovered which are symptomless. Of 130 pulmonary cases found in the Chadwick Clinics during a 5 year period, only 8 per cent gave definite symptoms, and barely 50 per cent showed either symptoms or physical signs. One of the three main obstacles met in endeavoring to secure contact examinations at the Henry Phipps Clinic is that the contact says he feels well and sees no need for examination.

5. Follow-up work, which is an essential part of the tuberculin-X-ray method, leads the investigator into many a home where there is an open case of tuberculosis, undiagnosed or masquerading as bronchitis, heart disease, or something else.

Dr. F. E. Harrington,[6] Commissioner of Health of Minneapolis, states that 26 per cent of the cases of adult type of tuberculosis now registered have come to the department's knowledge through follow-up work originating with infected children discovered in routine tuberculin-X-ray work.

6. The tuberculin-X-ray method has enormous educational value. Those who toil in the field of health education know how great is the inertia of indifference and how difficult it is to arouse interest in the subject of tuberculosis. The dramatic power of "consumption" has largely been lost—for which we should be grateful. Yet the need for understanding and for intelligent action is still great. By what means shall we reawaken interest and create a thirst for knowledge? A well planned project of case finding by the tuberculin-X-ray method breaks down the barriers and opens wide the gates for the education we wish to impart. Merely to ask parental permission to do the tuberculin test raises the question in their minds, "Why should *my* child be tested?" Willingly they come to hear a talk on the subject; eagerly they read the pamphlets offered them. Incidentally, it puts us on our mettle to express simply and truthfully but without creating unfounded fear, what the significance of infection may be. When the child's reaction turns out to be positive, they invite even more pertinent explanation. The commercial advertiser speaks of "breaking down sales resistance" and considers his campaign half won when he succeeds in doing it. Parents who will listen can easily be persuaded to surround the child with safeguards and good home environment, and to utilize the family doctor as health adviser.

Doctors who have given scant attention to tuberculosis are impelled to renew their interest and their knowledge when parents come to them with the child and a report from the school indicating what the tuberculin test and X-ray disclosed. The doctor's interest in the child necessarily embraces the entire family situation. The family becomes the unit of his study. Furthermore, he relates the childhood lesions called to his attention to the broad subject of tuberculosis. For the past 3 years a publication of the National Tuberculosis Association known as *Childhood Type of Tuberculosis* has been in great demand among physicians, which reflects widespread interest in this particular subject.

Through a school tuberculin test survey, teachers and school officials become acquainted with the problem of tuberculosis. Students in the high school are eager to learn about tuberculosis when such tangible evidence as a positive reaction or an X-ray film is before their eyes.

7. Finally, tuberculin test surveys contribute much needed knowledge to our understanding of the perplexing problem of tuberculosis. We sorely need, not only more research into the pathology of tuberculosis but also epidemiological observations made on large numbers of children in different localities, and the base lines now being established by group studies will be invaluable a few years hence when the time factor will have exerted its influence.

SUMMARY

The tuberculin-X-ray method is not a substitute for the tried and tested method of contact examination. On the other hand, contact examinations cannot be expected to reach certain sectors which are successfully explored by the tuberculin-X-ray method. Both methods have values. But these values cannot well be compared on a basis of relative efficiency. Therefore, both methods should be employed at least until displaced by some better scheme. Where means and facilities are limited it goes without saying that contact examination work should be given precedence—it is the most obvious method to be employed. If possible, tuberculin-X-ray surveys of high school children should be made as a supplement. For those who are able to do still more, elementary school children should be given the benefit of the tuberculin test and the X-ray.

With the continued decline in the incidence and death rates of tuberculosis, the possibilities of reducing it to a controllable minimum grows ever more attainable. Yet, as the fight narrows down, it becomes more technically difficult. We have succeeded thus far in discovering the obvious "carriers." There are still among us a goodly proportion of concealed or unsuspected cases. If the modern search for contacts seems tedious, complicated, and round-about, our justification is that only by reducing the foci of infection to a vanishing point can we hope to achieve protection against this disease in the same measure as we now enjoy protection against yellow fever.

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A Plan to Increase Understanding of the Value of Scientific Medicine*

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THE subject shows a sense of opportunism on the part of the program makers. Let us analyze it—starting at the rear end. After the third reading of it in a quiet darkened room the following break-up into questions emerges:

1. How scientific is medicine?
2. If it is scientific, of course, it has value. But do we want to increase popular understanding of its value?
3. Does the topic mean merely to increase the feeling that it is valuable, or to increase popular knowledge of the facts of medical science?
4. Can we do one without doing the other?
5. Can we do both at the same time?
6. If we can and should increase such understanding how shall we do it?
   a. With limited funds?
   b. With ample funds?

How scientific is science?

I asked this question of a doctor. I must have caught him either in a frank and cynical mood, or just after an examination of his bank account; for he declared that if half of the diagnoses made by licensed physicians were correct, that would be a good batting average. I asked the question of a business man interested in advertising and well acquainted with health and medical problems. He said he thought the doctors were right about 90 per cent of the time. He said he had acquired more faith in the intelligence of physicians after having had some experiences with experts in other lines. He then stated that lawyers must be wrong exactly 50 per cent of the time, because in every trial one side loses and the other wins; and possibly the one who is right in the lower courts turns out to be wrong in the appeal courts; and more than that, if you give even a supreme court years enough it will reverse its earlier diagnosis.

My personal experience with doctors has been one which prejudices me in their favor. We have spent considerable money with a child specialist, but it has been in the nature of insurance. Our 2 girls, one in kindergarten and one 3½, have never had anything more serious than colds. They were vaccinated and immunized in infancy.

I am convinced that my one good eye, which, although age has rendered it unwise for me to scan the sidewalks while driving through a busy city street, still serves me well in avoiding berserk trucks, in reading in bed, and in absorbing the joy of a sunset, can be credited to my frequent consultation of a good oculist.

But whatever may be our personal experiences, the newspapers are full of remarkable successes in surgery; the vital statistics tell the story of diminished death rates which must be credited, if not to scientific medicine, at least to social reforms and to preventive public health measures made possible

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by the facts furnished through the research of scientific medicine.

That motherhood is in the majority of cases safe and normal, that children can be expected to reach maturity, that tuberculosis can be arrested, are facts that can be counted on with greater certainty than that XYZ tires will not blow out and that runless stockings will remain stationary.

Of course it is true that not every doctor is a scientist. Some are just practitioners—some are just psychologists. And it may also be true that the man who lives in a city and deals with specialists is more impressed with the correctness of medical diagnosis—and perhaps more impressed with the much discussed problem of the cost of medical care.

It is equally true that not every business man is a business man—and recent events have suggested that perhaps you can't always bank on bankers.

So in this world of chance and approximations and trial and error, scientific medicine in the field of health is the only thing in which the public can place a fair degree of confidence.

Shall medicine be publicized?

The ancient tradition of medical ethics, that the private physician should not advertise, is based on sound business principles. Personal fitness is not the sort of thing that can be advertised. Doctor advertising might degenerate into ads like this:

B. C. Hippocrates, M.D.
Member Elite Country Club
Drives a Rolls-Royce
All the latest equipment in his office
Has a perfect bedside manner
Is absolutely sterile

In the building where I have my office there was once a chiropractor who hung out a sign which read:

Dr. A. B. Blank, D. C.
Specialist in everything
Whatever ails you
I can treat it

One night the specialist folded up his tent and departed, to—as far as I know—the never-never land.

Business firms can advertise because they handle merchandise, not personal service only. Businesses can advertise because they have only a few competitors; but a city which contains 1 department store lists 200 physicians.

The medical profession as a unit can engage in what is known to the cult of publicists as institutional advertising. It can advertise the field of medical service as a whole, that is, if certain conditions be fulfilled.

If medicine is a hocus-pocus, a matter of magic or mystery, it were best not subjected to the white light of publicity. But modern scientific medicine is not that. If the majority of doctors do not know how to give a complete medical examination, it might be best not to engage in the periodic examination propaganda. If the medical profession cannot render the service which it offers, it had best not advertise. But the profession rightly claims that its service is as accurate and efficient as the average well advertised commercial product or service. What reason therefore is there for not telling the public of the value of scientific medicine? No valid one that I can think of.

The advantages of making the public conscious of its need for medical advice and care are many. The doctor must live—and if the public is doctor-conscious he can live better. The patient-public wants to live as long and as fully as possible—and if he uses his doctor freely and constantly both in prevention and cure he is likely to do both.

Is it not the duty of the medical profession, then, to help increase the public understanding of the value of scientific medicine?

Shall the public have the facts?

While we still just love to take our

religion and our politics on faith, we are rebelling about swallowing our medicine and our automobiles that way. No longer is the patient content with being told that he has something with a long Latin name. The art of reading learned in our communistic schools, the newspaper and the radio, have made us want to be partners in the discoveries of science as well as in the problems of government and finance. It would be wasted effort to try to sell the idea that scientific medicine is valuable without explaining what scientific medicine is. As a matter of fact we cannot popularize scientific medicine without paying said public the compliment of revealing some of medicine's mysteries.

How shall we do it?

In the typical city there are 4 agencies that are ready-made instruments of propaganda:

The county medical society or academy of medicine
The official public health service
The voluntary health organization
The insurance companies, the dairy companies, and other business interests which profit by the reduction of health hazards.

I have called these instruments rather than media. The publicity media of course are familiar to all of us—the newspaper, the house organ, direct mail, the radio, group speaking, the motion picture, graphic art, demonstrations, and person-to-person publicity. The means of using these media are so well known to public health people that it would seem best to take judicial notice of that fact and confine our discussion to the general outlines of the plan.

There is some difference of opinion among physicians as to how far a county medical society can go in promoting public health, and the unavoidable corollary of such effort—the enhanced fortunes of the profession. The New York Academy of Medicine is an example of what might be called the liberal tendency. But, whatever may be the inhibitions of the board of governors of a medical society, it certainly can do much through other agencies. In so doing it can furnish the initial motivation through suggestion and organization and can very properly contribute financial support.

The private organization should have a fair proportion of doctors on its board of directors. The National Tuberculosis Association executive committee is made up almost entirely of physicians, and the boards of state and local associations contain enough to give them proper scientific medical guidance. The spokesmen of the medical profession in the country have asserted that it is the duty of the medical profession to assume the leadership in public health movements through active participation in the affairs of voluntary agencies and of the official public health service.

There is in the average community a ready-made instrument of health publicity. It is the tuberculosis association, or in the big cities, the public health federation of which the tuberculosis society is a unit. The chief function of the tuberculosis association is prevention through education. Education is a broad term, extending all the way from ordinary news publicity to child health training methods and the professional postgraduate clinic. It embraces the use of all the media mentioned above.

The tuberculosis movement affords a very comprehensive example of a program of increasing popular understanding of the value of scientific medicine. It has all the earmarks of the modern orthodox PLAN. It has a three-initial label—EDC, early diagnosis campaign, recently changed to SEC, spring educational campaign. It has its trademark—the red double-barred cross, international emblem of the anti-tuberculosis crusade. It is generously

supplied with slogans, such as "Let your doctor decide"; "Every case comes from another"; "Tuberculosis doesn't just happen"; "Protect your child"; "Tuberculosis—the foe of youth"; and an unaccepted one "The early diagnosis catches the germ." It utilizes all the known media. During April thousands of short popular pamphlets are distributed, groups are addressed by speakers, broadcasts are made, small posters and 24-sheet panels are displayed, news is manufactured, magazine articles are placed, and extra clinical service is given.

Now the EDC plan could be spread —without a great deal of thinning— throughout the entire year and could be made to include not only tuberculosis but the entire range of human ills which are susceptible of diminution through preventive efforts. As a matter of fact the National Tuberculosis Association recommends such extension.

The official agency probably does not think its chief function is publicity and education, but on analysis it appears to be. The health department which promotes a community-wide diphtheria immunization project is saving itself the later job of individual case work. One of the best things done by the Iowa State Department of Health is the few minutes a week spent by a doctor with ink in his blood who writes a news release known as a weekly health message. It goes direct to all the 660 papers in the state and often receives as high as a 90 per cent acceptance. The local health department takes advantage of hot news events to add its localized public advice and comment.

The state medical society maintains a speakers' bureau, furnishing, usually at its own expense, physicians who are supposed to be able to talk in popular terms to such interested lay gatherings as women's clubs and noonday men's groups.

The county public hospital and sanatorium would furnish an excellent laboratory for propaganda if there were in the community a health minded publicity expert given opportunity to use it.

As an example of the part played by business concerns organized for profit, a county coöperative dairy association conducts a weekly broadcast on the health value of milk, methods of insuring purity, milk-borne diseases, and the diet of children. Everyone has seen the advertising in magazines donated by a great insurance company to the cause of public health. As a matter of fact every good insurance man is a salesman of public health. The interests of insurance and of public health are identical—each wants to keep policy holders alive and healthy.

A local plan with limited funds

Now as to the machinery of the set-up, first with limited funds. Stimulated, approved, and assisted by the county medical group the local tuberculosis association can lay out a year round program of popular education. Speakers can be furnished by the medical society and can be lined up easily in other ways. Men like to speak—so do women, it is currently reported. Literature can be distributed. Demonstrations can be arranged. The radio welcomes such a popular subject as health. But in the program it must not be forgotten that after all advertising loses its effectiveness unless the goods it sells are delivered and unless the goods are good. The service rendered by clinics, by visiting nurse associations, by the medical care of the sick poor in their homes, by the public hospital, by the local department of health, must be the best that can be given. The most effective publicity is now, as it always has been from the days of Adam and Eve and the snake salesman, the word-of-mouth person-to-person touch.

Financial campaigns even have their value as educational forces. News-

papers are generous with their space during a community chest drive. The most appealing talking points are visiting nursing and child health. Health work is free from the necessity of much explaining which frequently surrounds the character-building or group social work agency, and at the same time it is not a ready target of criticism as is the relief or family welfare agency. The annual Christmas Seal campaign is primarily an educational device. Its news and graphic publicity is largely a process of adult health education, and its mail sale letters are a still more direct piece of health consciousness selling. It is of real advantage to a community chest to encourage a separate general seal sale, whether or not it underwrites part of the tuberculosis society's budget; because the seal sale is a social service; because the seal sale appeals to the Christmas season generosity urge; because the seal sale is a voluntary process; because the seal sale is democratic in that it obtains small sums from a general cross-section of givers, many of them people not reached by the community chest drive; and because it adds much to the funds available for the local social work program in which the chest is interested without detracting at all from the amounts pledged to the chest.

In all this thought about the tuberculosis society being made the center from which the publicity and educational forces designed to popularize scientific medicine emanate, I am assuming that the tuberculosis organization has either a secretary or an assistant who has training or ability in social work publicity. That is necessary to the proper functioning of any tuberculosis organization.

Such a publicity secretary should function with 2 advisory boards or committees—a social work publicity council, and a health council. He should draw upon the advertising club and the newspaper fraternity for advice and aid; he should be directed in matters scientific by the medical profession and the public health service; he should coöperate with the many voluntary non-operative organizations which are interested in public health. Speaking of this last, the women's clubs, the men's service clubs, the parent-teacher association, the American Legion, the farm bureau, and several other large and influential groups have some sort of a health program of their own which can be jigsawed into a fine picture of health propaganda.

Such is a possible plan where funds are limited. It is the plan applicable to the average community.

It is pleasant, of course, though not profitable, to speculate upon what could be done with ample funds. The county medical society could employ a social work publicity expert, with adequate staff, or retain the services of a publicity agency. The voluntary health agencies and the public health department and the schools could be subsidized. A program could be prepared that would rival the popularity and effectiveness of dated potables, and fags that do not fag the throat, and remedies that rim that oncoming cold. Such a propaganda would possess the additional advantage that it could always deliver the goods—because there is no longer any possibility of disputing the figures that prove the value of clean water, pure milk, and childhood immunizations.

CONCLUSION

It is a great cause—that of prevention through the increase of public understanding of the value of scientific medicine.

Once a president of the Iowa State Medical Society, Dr. W. A. Rolfe, waxed eloquent in a presidential address that was different from most:

> Great is the science that contemplates impenetrable space and studies the whirling

worlds, each in its own sphere, as they have leaped into space from the finger tips of God's creative genius; but greater is that science that snatches from space the mysterious element and applies it that the blind may be made to see and the lame to leap with joy.

Great is that science that delves into the bowels of the earth and seeks to find there the footprints of the Creator, left ages and ages ago in the form of leaf, or flower, or fish, upon the surface of solid rock, or that delves into the earth and seeks to find things of material and industrial value to humanity; but greater is that science that delves into the dark realms of the earth's bosom and seeks for those elements that may be used to alleviate human suffering. Great is that science that seeks to classify the green verdure of the earth, from the modest violet to the sturdy oak, the swaying elm, the weeping willow and the clinging vine; but greater is the science that seeks to find in root, in branch, in leaf, in flower, in fruit, the elements that may be used to smooth the wrinkles from the human pillow of pain, to lull to sweet and peaceful sleep the weary, tired, bewildered brain. Grand is that science, profession, or calling that anchors upon the dark, dim, distant horizon of the future beyond the grave, that bright and brilliant star of hope for life eternal; but grander is that profession that robs the grave of its victim, and restores the infant, laughing in childish health and glee, back to a grateful, happy, loving mother's arms.

This—and the occasion—and the iced tea—inspired me to indite the following paraphrase of Dr. Rolfe's eulogium:

Great is the doctor that with the magic of drugs lessens pain; but greater still the physician of the future who prevents human suffering. Great the healer that makes the blind to see; but greater the far-seeing physician that with a simple drop or two of liquid in the eyes of the new-born child makes sure that he shall never lose the green of trees and grass and the blue of summer skies. Great is the physician that guides the mother through the valley of the shadow; but greater yet the guardian of motherhood whose wise care lifts the shadow of fear and pain from that valley. Great is the doctor of yesterday who cured; but greater the doctor of tomorrow who cares so constantly that cure shall not be needed.

Great is the doctor of today who has added years to the life we live; but greater the doctor of tomorrow who adds life to the years we live.

Italy—National Bureau of Maternal and Child Welfare

THE Central Council of the National Bureau of Maternal and Child Welfare of Italy recently approved its budget for 1934, providing a government appropriation of 100 million lire. In addition the bureau expects to derive 12 million lire from other sources, among them membership dues.

The bureau is permitted by law to have dues-paying members; the bureau may also receive gifts from private sources; in 1933 these gifts amounted to one and a half million lire.

Fifty-six per cent of the bureau's appropriation for 1934 is to be used for work with married mothers and children born in wedlock, and 35 per cent for unmarried mothers and children born out of wedlock. As in previous years, the bureau is to give special attention to the prevention of morbidity and mortality of mothers and children and the encouragement of marriages and births.

In accordance with the experiment on financial decentralization begun in 1933, the money will be divided among the provincial branches of the bureau in proportion to the population and economic conditions of each province.—*Rassegna della Previdenza Sociale*, Rome, Dec., 1933.

Rabies Vaccine Protection Tests*

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THE many attempts to establish the potency and efficacy of rabies vaccine by animal protection tests have generally failed to yield consistent results, because of difficulties experienced with the infective dose. The dose is usually either too severe or innocuous, depending on the amount and mode of injection. Intracranial and intraocular injections of a proper dose invariably prove fatal. Other modes of infection—subcutaneous, intravenous, intramuscular, natural or artificial exposure—are so uncertain that similar results cannot be repeatedly obtained with any degree of consistency.

The intracranial injection is most direct, and the intraocular only a trifle less so, from the viewpoint of the distance the virus has to travel from the injection point to the brain tissue. A little further removed, however, is the oral region, and for this reason we selected the tongue as the repository for the infective dose, in the intralingual method of injection.

The method consists in the proper restraint of the animal, under anesthesia or narcosis. The rabbit may be placed in a suitably sized box with a hole at one end allowing for the protrusion of the head. By the use of a mouth speculum or rings with chains, the jaws can be held apart and the tongue grasped with a pair of forceps. We prefer to inject 0.1 c.c. of a 5 per cent emulsion of brain tissue virus moderately deep into the tongue, to one side of the median line, so that a bleb is noticeable. The animal apparently is not inconvenienced immediately or later by the injection and the period of incubation is only slightly longer than that following intracranial injection. Of two sets of rabbits the one injected intracranially averaged a period of incubation of 6 to 7 days, while the other with the same dose intralingually averaged 8 to 9 days. Of the total number injected intralingually 20 per cent survived, while of an equal number injected intracranially 100 per cent promptly developed rabies. Occasionally will an older rabbit survive the intracranial infective dose.

The rabies vaccine protection test is conducted by the subcutaneous injection of 3, 5, or more rabbits with the vaccine, followed 21 days later by the infective dose of virus intralingually. The test rabbits and an equal number of virus injected control rabbits are held under observation for 14 days.

The preparation of the infective dose of fixed rabies virus is an important detail. The rabbit brain tissue "seed" virus, usually kept in 50 per cent glycerine, is emulsified and injected intracranially into a rabbit and when it is moribund, so timed that this will occur on the day the infective dose falls due, it is chloroformed, the brain removed, immediately ground and made up in a 5 per cent emulsion in normal salt solution. The emulsion is strained through a 60 mesh silk and promptly used in 0.1 c.c. amounts.

* Read before the Laboratory Section of the American Public Health Association at the Sixty-second Annual Meeting in Indianapolis, Ind., October 11, 1933.

TABLE I

RABIES VACCINE PROTECTION TEST ON RABBITS

Group	Rabbits	Rabies Vaccine	Interval	Infective Dose‡	Results	
1	8	(a) 2.4 c.c. 14 days*	14 days	0.1 c.c. Intra-lingually	Living	100%
2	8	(b) 4 c.c. 14 days†	14 days		Living	100%
3	5	Controls			Living Dead**	20% 80%

* 33⅓% Brain tissue emulsion rabies vaccine (chloroform killed) daily injection.
† 20% Brain tissue emulsion rabies vaccine (phenol killed) daily injection.
‡ 5% Brain tissue emulsion rabies virus.
** Deaths preceded by definite symptoms of rabies.

The rabies vaccine protection test applied to two vaccines, one (a) chloroform killed and the other (b) phenol killed yielded comparable results.

The (a) chloroform killed vaccine tested included 17 brains and cords of rabbits moribund with rabies, which were ground, and 2 c.c. of buffered salt solution added to each gm. of tissue to make a 33⅓ per cent emulsion to which 1 per cent chloroform was added. The emulsion was kept at room temperature and shaken daily for 30 days. Two rabbits survived intracranial injections of 0.1 c.c. doses.

The (b) phenol killed vaccine tested included 20 brains and cords of rabbits moribund with rabies, which were ground and 4 c.c. of buffered salt solution added to each gm. of tissue to make a 20 per cent emulsion to which 1 per cent phenol was added. The emulsion was kept in an incubator for 72 hours at 37.5° C. Two rabbits survived intracranial injections of 0.1 c.c. doses.

Both vaccines (a) and (b) prepared on 11-27-31 were kept in cold storage and potency tested on 11-28-32, 1 year later, as shown in Table I.

Table I shows that all of the 16 rabbits injected with vaccines (a) and (b) survived the infective dose, which killed 4 of the 5 controls.

Rabies vaccine protection tests were conducted on mixtures made from samples of rabies vaccine phenol killed, 5 per cent brain tissue emulsion, that are taken and set aside at room temperature, as a routine procedure from each batch prepared.

The rabies vaccine mixtures for 1929, 1930, and 1931 were made from mixed samples of rabies vaccine prepared during the first 6 months of each year. For 1932, two mixtures of rabies vaccine were made, one from samples of batches prepared during the first 6 months, and the other from those prepared during the second 6 months. The mixture for 1933 was made from samples taken from rabies vaccine prepared during the first 3 months.

The normal rabbit brain tissue emulsion was a freshly prepared 5 per cent emulsion.

The vaccine and normal brain tissue emulsion were tested on rabbits as shown in Table II.

The test shows that rabies vaccines (1929 and 1930) exposed to room temperature longer than 2 years, failed to protect rabbits. Rabies vaccines (1931, 1932, and 1933) protected the

rabbits. Normal rabbit brain emulsion did not protect rabbits and 83 per cent of the control rabbits died of the infective dose.

The rabies vaccine protection test was used to determine the number of daily doses of rabies vaccine phenol killed, 25 per cent brain tissue emulsion required to protect rabbits against an infective dose, and also to determine the duration of such protection.

Table III shows the results of three tests. The first, 7-19-32, is the original; the second, 1-5-33, was made on the rabbits surviving the first test, and the third, 7-21-33, on rabbits surviving the first and second tests. The rabies vaccine phenol killed tested was prepared 6-26-32. It was shown to be noninfective as 3 rabbits survived 0.1 c.c. doses injected intracranially. The rabbits injected with 4 daily injections, all died of the infective dose given 17 days later.

The rabbits injected with 7 daily injections survived the first infective dose but not the second 5½ months later, indicating that protection did not last 5½ months.

The rabbits injected with 14 daily injections survived the first and second infective dose. At the end of a year, they were again injected with the third infective dose, and 2 out of 3 survived, showing protection over a period of 1 year.

The results indicate that the previous injections of 0.1 c.c. of live rabies virus

TABLE II

RABIES VACCINE PROTECTION TEST ON RABBITS

Group	Rabbits	Rabies Vaccine Phenol Killed*		Interval	Infective Dose†	Results
1	5	Year 1929	Rabbits injected daily: 2 c.c. doses for 7 days.	21 days	0.1 c.c. Intralingually	Dead‡ (100%)
2	5	1930				Dead‡ (100%)
3	4	1931				Living (75%) Dead‡ (25%)
4	3	1st 6 months 1932				Living (100%)
5	4	2nd 6 months 1932				Living (100%)
6	5	1933				Living (60%) Dead‡ (40%)
7	4	Normal Rabbits (Brain Tissue 5%)				Living (25%) Dead‡ (75%)
8	35	Controls				Living (17%) Dead‡ (83%)

* 5% Brain tissue emulsion.
† 5% Brain tissue emulsion rabies virus.
‡ Deaths preceded by definite symptoms of rabies.

TABLE III

RABIES VACCINE PROTECTION TESTS ON RABBITS

Group	Rabbits	Rabies Vaccine Phenol Killed*	Interval	Infective Dose† 7-19-32	Results	Infective Dose† 1-5-33	Results	Infective Dose† 7-21-33	Results
1	3	0.5 c.c. 4 days	17 days	0.1 c.c. Intralingually	Dead ‡100%	0.1 c.c. Intralingually		0.1 c.c. Intralingually	
2	3	0.5 c.c. 7 days	14 days		Living 66⅔% Died 33⅓% (Broken Back)		Dead‡ 100%		
3	3	0.5 c.c. 14 days	7 days		Living 100%		Living 100%		Living 66⅔% Dead‡ 33⅓%
4	8	Controls			Living 13% Dead‡ 87%		(6 Rabbits) Living 33⅓% Dead‡ 66⅔%		(3 Rabbits) Dead‡ 100%

* 25% Brain tissue emulsion rabies vaccine daily injections.
† 5% Brain tissue emulsion rabies virus.
‡ Deaths preceded by definite symptoms of rabies.

intralingually had no appreciable immunizing value, inasmuch as the 7 dose rabbits died, while the 14 dose rabbits survived the second infective dose.

SUMMARY

The intralingual injection of the infective dose of rabies virus makes it possible to obtain fairly consistent results in the protection test of rabies vaccine on rabbits. The test brings out the greater protective value of a series of injections indicating that 7 doses is the minimum to insure survival of the rabbits infected 14 days later.

CONCLUSIONS

1. Rabies vaccine (chloroform killed) and rabies vaccine (phenol killed) both passed the protection test in an equally satisfactory manner.

2. Rabies vaccine (phenol killed) kept at room temperature fails to protect when the vaccine is more than 2 years old.

3. Rabies vaccine (phenol killed) kept at room temperature for 2 years satisfactorily passed the protection test, supporting the contention that rabies vaccine can be dated for 2 years from the date of issue.

4. The injection of 14 0.5 c.c. doses of 25 per cent brain tissue rabies vaccine (phenol killed) has been shown to result in protection in rabbits lasting at least 1 year.

Early Diagnosis of Primary Syphilis*

Practical Darkfield Examination by Mail

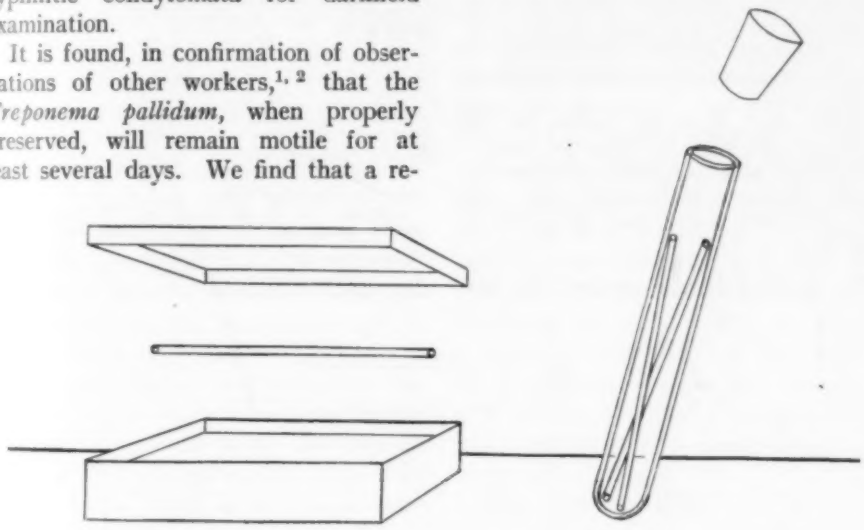
HEWARD ELLIS ELMER

Heiligenwalde über Königsberg (Pr)5, Germany

THE collecting outfit described below has been used successfully by the writer over a period of 6 months in sending by mail, from the venereal disease clinic to the laboratory, specimens of exudate from chancres and syphilitic condylomata for darkfield examination.

It is found, in confirmation of observations of other workers,[1, 2] that the *Treponema pallidum*, when properly preserved, will remain motile for at least several days. We find that a reliable diagnosis of syphilis by means of the darkfield microscope may be obtained when the laboratory is as much as a week distant by post from the clinic.

We found the prime essential in preserving the viability of the *Treponema pallidum* to be exclusion of oxygen. We collect our material, simplifying the method of Mahoney and Bryant,[1] in small glass capillary tubes. To avoid inclusion of air with the specimen we either fill the capillary tube completely or else break off the ends of the tube close to the enclosed drop of fluid. We then immerse the tubes entirely in vaseline, contained in a small tin box, by laying the tube horizontally on the vaseline and gently pressing under the surface. At the laboratory the fluid is expressed on to the microscope slide by pressing one end of the tube into a small block of soft paraffin wax (equal parts of wax and vaseline).



The collecting outfit consists of the following component parts:

1. Half a dozen small glass capillary tubes, 2½" (6 cm.) in length. The tubes used for dispensing smallpox vaccine are of the desired length and bore; or they may be easily drawn

* Paper founded on original work by the author while in the Venereal Disease Clinic, Chicago, Ill.

from glass tubing. These tubes fill readily when touched repeatedly to the drop of lympth exuding from the sore.

2. A small corked test tube to carry the capillary tubes and serve for return of blood specimen for serologic tests. A round-bottom vial, 7/16″ x 3″, with fairly heavy wall, stoppered with a No. 3 cork, meets requirements.

3. An oblong tin box with removable cover in the long dimension, ¾ filled with vaseline. A box described as follows was obtained in a stock size: "plain tin oblong seamless slip-cover box, 2-9/16″ x ⅞″ base by ½″ deep." A mixture of vaseline containing 5 per cent paraffin wax is of the proper fluid consistency and of a melting point to withstand summer temperatures in the mail without flowing. One lb. of vaseline is sufficient for about 100 boxes.

4. Two grease-free microscope slides (enclosed in a small envelope). These slides are for air-dried smears from the lesion for staining by Fontana's or other suitable method, to provide a permanent record in the laboratory if desired.

5. Data card, 3″ x 5″, bearing on the reverse side directions for using the outfit.

6. Mailing tube consisting of inner tin cylinder (diameter 1½″, length 3½″) and outer cardboard mailing case (diameter 2″, length 4″).

The method here described for preserving the *Treponema pallidum* in a viable state during transmission by post permits a reliable diagnosis of syphilis when the laboratory is situated at a distance from the clinic. For the practising physician, particularly for the physician in the smaller town, and above all from the point of view of the public health department, this possibility is of the utmost importance in that, as has been shown [3] treatment of seronegative primary syphilis is almost 100 per cent successful when instituted within 14 days of the first appearance of the chancre and, as has also been pointed out [4] any diagnosis of syphilis not confirmed by laboratory findings remains practically always open to question.

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Fevers of the Typhoid Group in Members of the Civilian Conservation Corps During 1933

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ON March 31, 1933, the President approved the action of Congress (*48 Stat. 22*) for the relief of unemployment. As a result, the Civilian Conservation Corps was created and over 200,000 young men were enrolled and sent to small camps throughout the United States.

These men were examined physically and inducted into the Corps by the Army. Army officers supervised their clothing, feeding, and vaccinations, and accompanied them to camps, remaining with them, being in charge of everything except their actual work which was performed under the direction of experienced foresters and woodsmen.

All enrollees were given the regular Army typhoid prophylactic. This consists of three doses of a vaccine containing 750 million typhoid and 250 million paratyphoid "A" organisms per c.c. prepared according to standard technic at the Army Medical School, the first dose being ½ c.c. and the second and third doses 1 c.c. each, administered at intervals of 7 days between doses.

These men were scattered throughout the country in over 1,000 camps, almost entirely in rural areas. In many of these areas typhoid fever was endemic so that the exposure rate was relatively high.

During September and October many men left the camps upon completion of their 6 months' enrollment period, and new men were enrolled to replace them. The average strength for the 39 weeks of 1933 was 222,967, although it is estimated that approximately 450,000 different men were in the camps at various times during the year.

For the entire group during 1933 there were reported 54 cases of typhoid, 11 cases of paratyphoid "B," and 2 cases of paratyphoid "A." The para "A" infections occurred, one in a soldier of the regular Army on duty at a camp in Tennessee, and the other in an enrollee in Georgia who became ill after only a few days in camp and before vaccination was completed. Both recovered.

This incidence gives a rate of 0.32 per 1,000 per annum for typhoid, 0.01 per 1,000 per annum for paratyphoid "A," and 0.07 per 1,000 per annum for paratyphoid "B." Four of the cases of typhoid ended fatally, a mortality rate of 0.02 per 1,000 per annum.

The 11 cases of para "B" infections were all in the same company in a camp in Kentucky and were traced to a food handler in a local restaurant who was a carrier; all cases recovered.

A study of the 54 cases of typhoid shows that geographically they were distributed as shown in Table I.

TABLE I

GEOGRAPHICAL DISTRIBUTION OF TYPHOID CASES

Texas	32
Oklahoma	10
New Mexico	6
Louisiana	2
Maine	1
Maryland	1
Illinois	1
California	1
	54

Data relative to the lapse of time between vaccination and onset of symptoms show that:

Two men reported at camp with symptoms. One man became ill before vaccination was completed.

Three men developed symptoms less than 15 days after third dose of vaccine.

Seven men developed symptoms between 15 and 30 days following third dose of vaccine.

Forty-one men developed symptoms 30 days or more following vaccination.

Considering the 4 fatal cases—one was taken ill 11 days, one 18 days, one 40 days, and one 67 days following completion of vaccination.

Laboratory findings were positive in relatively few of these cases. In some instances laboratory facilities were not available in the hospitals where the patients were treated. Diagnosis was based, therefore, upon clinical findings only in quite a number of cases. As an example in the para "B" outbreak in Kentucky, organisms were isolated from 3 cases only. However, the 8 other patients ill at the same time had the same train of symptoms, so were considered clinical cases. The examination of the food handler in the restaurant was positive for para "B" type organisms.

Polluted water supplies were regarded as sources of infection in 44 of the 54 cases. Although chlorinated water was supplied in camp and men were instructed to carry canteens when absent at work, there was evidence in these cases that the rules were disobeyed and well and stream water from unauthorized sources was ingested.

The largest outbreak occurred in a company encamped at Hamilton, Tex. This company had 29 cases with 1 death. The members of the company worked in the country some distance from the camp, and the source of infection was thought to have been a well which supplied water to a family in which there had been 2 cases of typhoid during the last year. Examination of the water showed a high bacterial count with many *B. coli*. Two members of the family residing here were also found to be carriers.

In the regular Army during 1933 there were 4 cases of typhoid reported from troops within the United States, a rate of 0.04 per 1,000. The rate of the total Army at home and abroad was also 0.04 per 1,000.

If the number of members of the CCC exposed to typhoid (approximately 450,000) rather than the average strength be considered, the rates would be 0.12 per 1,000 for typhoid, 0.004 per 1,000 for para "A," and 0.024 for para "B" with a mortality rate of 0.008 per 1,000.

CONCLUSIONS

Infections with the typhoid group were very low in the CCC during 1933. This is especially true if the number of individuals exposed is considered.

The case fatality rate for typhoid was 7.4 per cent. There were no fatal cases of paratyphoid.

A Semi-Automatic Delivery Pipette

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THE pipette described on page 59 of the January 1934 number of the *American Journal of Public Health* is interesting and quite useful. It is rugged but limited to the particular volume for which it is made.

On several occasions the writer has constructed a similar pipette to be used for delivering different quantities by the use of interchangeable measuring reservoirs. These pipettes are somewhat simpler and can be easily constructed in the laboratory by anyone possessing only such skill as a good laboratory technician should have. The only piece necessary to purchase would be the 4-way stopcock, as all the rest is easy. As commercial 4-way stopcocks have different styles of bored plugs, it is important to see that the plug be quadrant bored as shown.

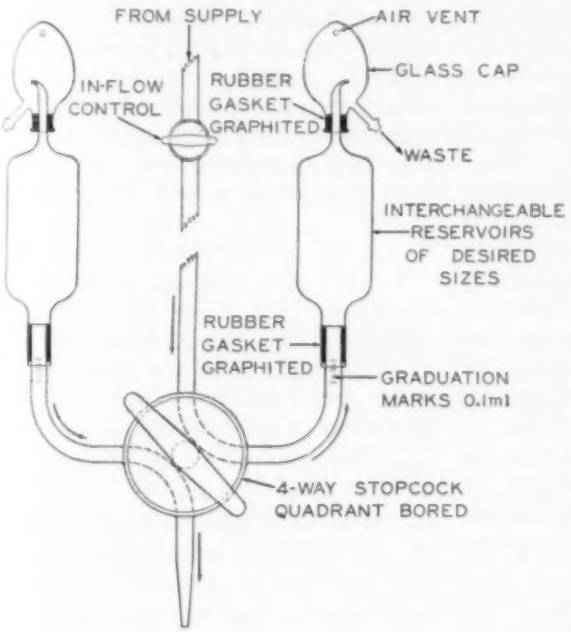
The two side arms are bent upward and cut off at a convenient length.

The top arm is connected with the reservoir of water or material to be dispensed.

The bottom or delivery arm is cut off and drawn into a nice tip.

The side measuring reservoirs may be made to hold any desired quantities. The writer has used interchangeable vessels for 9 ml. and 99 ml. water blanks. The shanks slip over the upturned side arms and are adjusted to calibration marks of 0.1 ml. for the proper correction for loss in the sterilizer. A rubber gasket well lubricated with graphite makes a firm connection but allows easy adjustment and removal for change of size.

It is well to mount the pipette on a firm wooden support although local conditions suggest various ways of arrangement. The inflow may be controlled by a stopcock so that one reservoir fills just as the other empties.



SEMI-AUTOMATIC PIPETTE

NOTE: The 4-way quadrant bored stopcock can be obtained by special order through the Corning Glass Works, Kimble Glass Company, Eimer and Amend, or Arthur H. Thomas Company.

Scarlet Fever Toxin—A Successful Immunizing Agent*

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Board of Education, Gary, Ind.

SUMMARY

AFTER giving 49,165 doses of scarlet fever toxin, 20,278 primary Dick tests, and 12,713 Dick retests in the Gary schools, we have found that scarlet fever immunization as recommended for use by the Scarlet Fever Committee is a safe procedure and that it is a valuable asset to a community as a prophylactic measure.

During the 8 years preceding 1925 when Gary's school census varied from 9,811 to 18,438, there were 26 deaths from scarlet fever among 1,241 cases reported. In the following 8 years, up to the present time, since immunization has been carried on, the school census has varied from 20,472 to 28,032, and there have been 1,147 cases with 13 deaths.

In giving Dick tests it is important that exactly 0.1 c.c. of test material is injected intradermally; that the potency of the material is checked; and that the tests are read from 22 to 24 hours later in clear daylight. If there is a question as to whether the test is negative or positive, it should be considered positive and the child should be given doses.

Some severe but no serious reactions have resulted from the 49,165 doses of scarlet fever toxin. When we consider that in one school center last year, out of 114 who began doses, 107 finished, we see evidence of the infrequency of severe reactions to doses.

During the past year 2,055 primary Dick tests were given, of which 762, or 35 per cent, were negative. Of 368 who were given the usual 5 doses and given a Dick retest 2 weeks later, 788, or 91 per cent, were negative.

During the past year when we retested 171 who had had the usual 5 doses 5 or more years previously, 139, or 81 per cent, remained negative.

Of the 18,980, the total number of primary Dick tests read during 9 years, 46 per cent have been negative.

Among a group estimated at 10,000 who have completed scarlet fever toxin doses, there have been only 9 persons who had a negative retest who have later been reported with scarlet fever.

CONCLUSIONS

1. The most common error in interpreting Dick tests is to read a slightly positive test as negative. The child should be given the benefit of the doubt, and if the reading is questionable he should be given a series of doses.

2. The reaction to the Dick test in an individual may change. May this be due to the general physical condition of the individual concerned? May it be due to a deficient immunity mechanism? This fact, that it is possible to be immune at one time and not immune at another time, may account

* Summary of paper delivered at a Joint Session of the American Association of School Physicians and the Child Hygiene and Public Health Nursing Sections of the American Public Health Association at the Sixty-second Annual Meeting in Indianapolis, Ind., October 9, 1933.

for the occurrence of scarlet fever in those who have had a negative Dick test. Errors, or change in Dick tests, may occur from: (1) impotent test material, (2) improper injection of the amount or depth, (3) errors in interpreting tests, (4) change occurring in the person tested that permits him to be negative and change to a positive.

3. The full dosage usually should be given at each injection. In a small percentage of cases it may be advisable to repeat the previous dose if a severe reaction has occurred.

4. Urticarial reactions may usually be prevented by giving 0.25 to 0.5 c.c. of adrenalin with the scarlet fever toxin dose. We do not recommend the administration of adrenalin except to persons likely to have urticaria or to the few who may have a tendency to very severe emesis and prostration following a dose.

5. A Dick retest should be given 2 weeks following the last dose and a 6th dose (80,000 to 100,000 skin test doses) should be given if the retest is positive. If a person who has been given a full series and a 6th dose is later found to be still positive, a second series is advised. If, however, such person is at a later date found to be positive again, we usually do not recommend a third series; but more doses may be given if desired.

6. Immunity obtained from 5 doses of scarlet fever toxin is apparently comparable in results and duration with the immunity against diphtheria obtained in Gary with 3 doses of diphtheria toxoid, a total of 3 c.c., having an antigenic value of 4½ to 8 units per c.c.

7. Most susceptible persons may be made immune to scarlet fever as evidenced by the Dick reaction.

8. Dick tests should be made at certain intervals on a person, even though he has had a Dick negative test.

9. The Dick test appears to be a reliable means of determining susceptibility or immunity to scarlet fever. Persons who have been tested recently and pronounced negative usually escape the disease. They may be carriers and they may spread infection. Symptoms which lead one to suspect that a person who has been closely associated with a scarlet fever patient is a carrier are the presence of acute abnormal discharges in the nose; inflammation of the mucous membrane of the nose or throat; or a mouth full of carious teeth. The presence of hemolytic streptococcus from cultures made from the nose and throat would be stronger evidence of the person being a carrier.

Integration of Federal, State and Local Agencies*

THE following memorandum has been prepared by the Committee on Federal Relations of the State and Territorial Health Officers and approved by every member thereon:

It is the well considered opinion of the committee that a specific and definite policy of the Federal Government should be formulated for discharge of the responsibility of that element of government in the development and maintenance of local health work. Such policies have been formulated in many other functions of government and express or imply the relationships of the several elements of government, each to the other.

Policies with reference to public health administration in the past have been, in most instances, outgrowths of emergency situations, and this has been especially true of the aid extended by the Federal Government in the development and maintenance of local health service. Quite obviously, the reason for this situation is a failure on the part of the body politic to recognize basic responsibilities for continuing work, and to demand continuing support for the discharge of these responsibilities.

Crystallization of a policy into statutory law will be of material aid in bringing about a more constructive understanding and appreciation of fundamental needs in the protection and promotion of the public health, an understanding that it is not the dramatic emergency which is responsible for the greatest loss in vital resources but the unspectacular and insidious conditions that are constantly at work.

This can best be accomplished through the enactment of special legislation which, in addition to enunciating permanent policy, would definitely fix the amount appropriated on a continuing basis and thus avoid the necessity for defense of the appropriation each year.

With these thoughts in mind, the committee respectfully recommends that an Act incorporating the following expressions of policy be prepared and presented to Congress for the purpose of enabling the U. S. Public Health Service to coöperate with state departments of health in the development and maintenance of local health work:

1. There should be in the Act a declaration of policy stating the reasons for and objectives of the Act similar to the following:

> It is recognized that the conservation of vital resources through the protection of human life and human health is a national economic necessity; that throughout the United States there is unnecessary wastage of vital resources; that preventing the spread of epidemic diseases from one state to another is the responsibility of the Federal Government; that the most effective means of preventing the spread of such diseases lies in eradicating, at the source, of the conditions responsible for continuing existence of communicable illness; and that many communities, especially in the rural areas of the country, do not now possess resources sufficient to permit the support of necessary health service without aid from other sources.
>
> Therefore, it is hereby declared to

* Report of the Committee on Federal Relations of the State and Territorial Health Officers.

be the policy of the Congress to promote the development of national, state and local health service of such extent and character as to equalize the opportunities for life and health of all the people of the United States and to make possible the prevention of the inter-state spread of disease in the most effective manner.

Since, in the experience of the health authorities of many states it has been clearly demonstrated that the establishment of permanent full-time local health units constitutes an economical and effective method of providing adequate local health service, it is also declared to be the policy of the Congress to render aid in promoting as a primary objective the further development of local health service by providing financial assistance from the Federal Government in the maintenance of full-time local health units in the several states.

2. Authority to detail officers of the Commissioned Corps and other technical personnel for coöperation with state health departments in promoting and assisting in the administration of this service should be granted specifically, by the statute, to the Surgeon General of the U. S. Public Health Service.

3. The principle of basing grants to states on the development of local units of organization, the grants to include a fixed amount per local unit of government with an additional equalizing differential granted on a per capita basis per local unit of government, should be followed rather than that of allotting flat and per capita grants by states. The U. S. Public Health Service should be authorized to study the varying needs of local governments in coöperation with the states, together with the varying ability of local governments to finance local health service. Based upon such studies the U. S. Public Health Service should be authorized to promulgate rules and regulations prescribing the amount of aid found to be necessary in varying classes of local units of health organization.

4. The U. S. Public Health Service should be given authority to prescribe by regulation any other conditions including the qualifications of personnel, necessary for the wise and effective expenditure of allotments.

5. Allotments to the states for local units of health organization should not be in excess of 50 per cent of the total budget in the beginning; and within not more than 5 years the county and state should assume not less than 75 per cent of the total costs. It is believed to be sound policy to provide for the continuance of a maximum of 25 per cent of the total budget so long as the need for assistance can be satisfactorily demonstrated.

6.* There should be authority for a continuing appropriation which would provide the sum of $2,000,000 for the first year, increase at the rate of $500,000 per annum each subsequent year to a maximum of $5,000,000 available for the 7th year, and continuance at this rate indefinitely thereafter.

7. The U. S. Public Health Service should be granted authority to allocate a specific percentage of the total appropriation for the administration of the service as a whole and to provide for technical consultant service personnel.

E. L. BISHOP, M.D., *Chairman*

* With approximately 600 county health departments at present in the United States and with approximately 3,000 counties in the country, it is believed that the sums mentioned will be required to provide the assistance necessary for reasonably adequate staffing of existing local units of health organization and an orderly growth in the development of any new full-time units. It is apparent that the appropriation of $2,000,000 for the initial year would provide an average of $2,500 per annum for the 600 counties now organized, and for the organization on the same average allotment of 200 additional counties throughout the United States. It is understood, of course, that any part of the $2,000,000 which might not be used the first year would be returned to the Treasury.

High Lights of the Biennial Nurses' Convention, Washington, D. C., April 22-27, 1934

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THE attendance of 7,900 nurses broke all Biennial records. There was speculation as to why so many could afford to get away in these times. However it must be remembered that there is a membership of over 100,000 in the American Nurses' Association, and then the National Capital in the spring was a drawing card. But one could sense subtler reasons than these for the big attendance—an eager quest for knowledge on the part of the nurses; a feeling that times are changing and that nursing must change with them; that there must be better distribution of nursing services; better organization in nursing; closer planning of nursing organizations with other agencies, both local and national.

THE KEYNOTE OF THE PROGRAM WAS CHANGE

This was evidenced by the following topics for some of the joint sessions "The Changing Order of Today" as it Affects the Economic World; Community Life; The Field of Education; Hospitals; and Nursing.

One of the most inspiring addresses at the Joint Sessions was made by a consulting engineer, David C. Coyle, of Washington, D. C., who said that the RFC was a sedative, that the only new thing in this depression was the spasm of bankruptcy, that the price of progress is capital loss, that taxes will have to be laid on personal income, that "saving for a rainy day makes it rain all the harder," that services is what civilization is really made of. He predicted that there will be fewer men employed in industry because of labor saving devices, that there will be more leisure for all, that those not employed in industry, not sick, and not on an old age pension will be employed in services. Speaking of nursing particularly, he said "It is just your good luck that the things you have always wanted to do for improving the health and happiness of the people happen to be the things that must be done in order to make the economic system operate.'

Enlarging on the word services he said they would include building dams on the tributaries of the Mississippi; building sewage disposal plants; eliminating parasites on society like criminals and gangsters; guarding the health of children to make them easier to look at. There will be more money spent on cultural services. Not all will be engaged in highbrow art—some will be "stage hands." Jobs will be more variegated in the future, making workers more intelligent.

Speaking of what use will be made of the more abundant leisure time, he said most people for the last half million years have had to work desperately

hard to keep alive, and that human beings when freed from hard work do not become lazy—they generally have an outburst of energy.

An official from the Federal Emergency Relief Administration, Aubrey Williams, speaking on The Changing Order of Today as it Affects the Community, stated that 3,000 units in FERA were working in 9,000 communities in this country affecting 3 million families and from 20 to 25 millions of people.

There is a great change in the attitude of government in that for the first time it announces its interest in the welfare of its people. The federal government has led the way in this and insisted on the same attitude from the states. The government is also insisting that standards be maintained among its professional workers, and is breaking through provincialism by insisting that the ones giving the best services get the jobs.

DISTRIBUTION OF NURSES

C. Rufus Rorem stated that in 1929 only 9 per cent of the people received private duty nursing care, and in that year half the people receiving this care had salaries of over $5,000 a year; yet people of all other economic grades have about the same amount or more of illness.

Dr. C.-E. A. Winslow of Yale stated that of all nurses one-tenth are in public health, three-tenths in institutions, and six-tenths in private duty. He feels that public health nursing should be for all classes of patients, that there is a discrepancy between hourly nursing and 8 hour duty nursing. He wonders why one agency in a community cannot be equipped to supply all nurses needed in the home—sort of a combination between a nurses' directory and a visiting nursing service. He feels that the separation between nursing done in the hospital and that furnished the patient in the home by private duty or public health nurses is too sharp.

OF PUBLIC HEALTH NURSING SIGNIFICANCE

Perhaps the greatest revelation the convention brought the public health nurses was the recognition on the part of all of the growing responsibility of official public health nursing agencies. This was well illustrated by the fact that the new president and new first vice-president of the N.O.P.H.N. are superintendents of nurses in two of our big city health departments. Also by the fact that the U. S. Public Health Service has just put one of our leading public health nurses on its staff as a Consultant, who will have another public health nurse as her assistant to make field studies.

Another general feeling brought out that waxes stronger from year to year is the importance of securing the active interest and support of laymen not only in public health nursing, but also in general nursing education and nurse training.

Mrs. Franklin D. Roosevelt, addressing a joint session, stated that the trend in nursing is from private duty to public health nursing. Another trend is toward more teaching on the part of the nurse "to show us how to live physically so we may be healthier, happier people."

Dr. Royal S. Copeland, Senator from New York, stated he felt it was poor economy for communities to cut down on public health and social work when they were spending billions of dollars to counteract crime. He would have the public health nurse know more about psychology and mental hygiene so she could help the teachers pick out the potential misfits in society, and help the parents and social agencies and physicians in a community to correct wrong tendencies early, if possible. He would have a public health nurse work-

ing in every schoolroom in the country. This is right in line with what Herbert Hoover said, "One good community nurse will save a dozen future policemen."

The report of the N.O.P.H.N. Survey of Public Health Nursing brought other revelations to all groups of public health nurses. It is out in book form now obtainable for $2.00 from The Commonwealth Fund, New York, or the Book Service of the A.P.H.A. It behooves every public health nurse to read it for, as Katharine Tucker says, "It is the first time in the history of public health nursing in the United States that a study so comprehensive in scope and analytical in method has been made possible."

The School Nursing Section of the N.O.P.H.N. had a spirited round-table session on the "Significance of this Survey Report for School Nurses." As a result, a fine report with resolutions and recommendations was made by the secretary at the final N.O.P.H.N. session, which we hope will have wide distribution and deep study.

MEETING OF STATE ADVISORY NURSES

The convention was extended over one day, April 28, to take in an all day session of this group in the Auditorium of the U. S. Public Health Service. Between 20 and 30 states sent their state advisory nurse or a representative. Others present were 4 members of the N.O.P.H.N. Staff, a public health nurse (who presided), and a physician from the U. S. Public Health Service; the Superintendent of the U. S. Public Health Service Nurse Corps; the Supervisor of Nurses of the Indian Bureau; the National Director of the American Red Cross Public Health Nursing and Home Hygiene Service; and the Director of Public Health Nursing for the Ontario Department of Health of Toronto.

C. E. Waller, M.D., Assistant Surgeon General U. S. Public Health Service, welcomed the nurses and sketched briefly the history of the development of the service. Other topics taken up on the morning program were Personnel Practices; Suggestions for Supervision and Staff Education; Records and Reports as Supervisory Devices; General Relationships; and Relationship of Nursing Agencies to the Medical Profession.

In the afternoon Alma Haupt of the N.O.P.H.N. discussed "What We Have Learned From the Civil Works and Relief Program." Some of her conclusions:

Rules No. 7 recognized nursing care as a legitimate lien on relief funds. An existing public health nursing agency could be used and paid on a visit basis.

Results of CWS Employment of Nurses:

Success in getting many unemployed nurses back to work.

40 states had state advisory committees.

New methods of giving staff education to rural nurses were devised.

Interest in getting public health nursing training was stimulated in many new nurses.

Well planned projects stimulated new interest in communities in public health nursing.

Marion Sheahan, Director of the Bureau of Public Health Nursing, State of New York, outlined the points on a questionnaire that is to be sent to advisory nurses in state health departments to form the basis of a proposed review of these services—a joint project of the Public Health Nursing Section of the A.P.H.A. and the N.O.P.H.N.

With the growing responsibility of state advisory nurses for the development of public health nursing in their state in keeping with the trend of the times, many at this meeting expressed their need to meet annually under the auspices of the U. S. Public Health Service just as the state health commissioners and sanitary engineers do.

RESULTS OF THE ELECTION

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FEDERAL EMERGENCY RELIEF AND PUBLIC HEALTH

FOR some time we have had in mind giving to our readers a clear statement of what the CWA, FERA, CCC and other emergency relief agencies have been doing for public health. All have seen items from time to time from one state or locality or another, but nothing has come out giving collective statistics. After trying various leads, a letter was addressed to the Federal Emergency Relief Administrator. This was replied to by the Director of Public Relations, and the statement was made that, owing to the fact that the CWA endeavor was put into effect almost over night, using machinery of federal, state and local agencies already established, as well as new administrative bodies formed for the purpose, and because the whole movement went forward at such a tremendous pace, it had been impossible so far to collect correct statistics for all the states and from all the bodies which have been engaged in this work. The pressure of relief work as well as the necessity for speed was great. It has seemed worth while to give what we have been able to find out. We are open to both correction and amplification.

Among the projects adopted, we find "Classification G. Sanitation," under which sanitary and storm sewers were constructed, ditching and cleaning of creeks, with the filling in of low places were carried out; sewage disposal, incinerator plants and sanitary privies, septic tanks, etc., were constructed. Under "Classification H. Waterways and Water Supply," come a number of projects which influence public health directly. "Classification F. Pest Control" includes mosquitoes, drainage, oiling and stream clearing.

Under the CWA projects, No. I relates to those benefitting public health. Under this heading come typhus fever control, for which $1,143,000 was appropriated; spotted fever control, $79,500; malaria and filariasis control and sanitation, $312,046; malaria control, $4,500,000; rural sanitation, $5,000,000, and the sealing of mines, $1,519,750. On these projects it was estimated that some

53,000 men were employed. On March 31, the CWA, as such, went out of business and the uncompleted projects under it, including public health, are being continued under the Works Division of the FERA.

The projects including Malaria Control, Rural Sanitation and Sealing of Mines were carried on under the auspices of the Public Health Service, which also took part in Spotted Fever and Typhus Fever Control. The Administrator believes that in a few months (136 days) more has been accomplished for the control of malaria than has been possible in 25 years under the restriction of budget necessary in the Public Health Service. Some 30,000 men were put to work draining and cleaning up breeding places of the mosquitoes.

Some 32,000 men were employed in improving sanitary conditions in rural districts, largely in the South. A large number of sanitary privies have been constructed and the educational value of the demonstration given in proper disposal of excreta has undoubtedly reached a very large number of persons and will do good to many for a number of years, and it is to be hoped, permanently.

The sealing of abandoned mines is being carried out chiefly in Pennsylvania, West Virginia, Kentucky, and Ohio, since discharges from them are changing certain streams from an alkaline reaction to an acid, rendering the treatment of this water for drinking purposes difficult.

We have already run an editorial written by Colonel W. M. Bispham, Medical Corps, U.S.A., on the work of the CCC camps. Although not listed as a measure for promotion of public health, there must be mentioned the expenditure of $100,000,000 on slum clearance and modern inexpensive housing under the Public Works Emergency Housing Corporation. This must exercise a wide-reaching effect on health.

Apart from the work which has a direct public health value, the fact that approximately one billion dollars, according to the estimate of the Administrator, has been spent, 750 million of which was for labor and the remainder for material, has necessarily had a good effect on public health generally. The maximum payroll has been as high as 60 million dollars a week. In the United States during October and November, some 14,600,000 people were receiving unemployment relief.[1]

A limited amount of observation indicates that the people receiving relief spent the money given to them wisely, and the same is true of the CWA workers. Of those receiving relief in January, 1934, 42 per cent were children under 16 years of age, with 36 per cent of preschool age.[2]

Needless to say, in an enormous project gotten up and put through at such a tremendous speed, there has been some graft and some foolish expenditure, as well as waste. A striking instance of this is the assignment to a man holding the degree of B.S. in Agriculture (incidentally, the most appropriate degree that any university gives) to make a study of poliomyelitis. It is not clear just what conclusions were reached, but we are led to believe that it is probably dangerous to let concrete come in contact with drinking water! Nearly 20 pages of foolscap were wasted on this wonderful paper, entitled, "What is Poliomyelitis? Is not Its Infective Agent a Micro-inorganism?" However, in spite of some drawbacks, there is no question that much good work has been done, and it is greatly to be hoped that permanent results have been achieved.

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WILLIAM HENRY WELCH

THE death of Dr. Welch, who reached his 84th birthday on April 8, 1934, removes from the medical world a notable figure. He had been suffering from cancer of the prostate and had been practically confined to the hospital for more than a year.

Dr. Welch and the late T. Mitchell Prudden shared the honor of being the American pioneers in renouncing medical practice and devoting themselves wholly to teaching and investigation in pathology. "Finally there appeared on the horizon in this country a few anomalous individuals who cherished the notion that the science of disease, even in its etiological and morphological aspects alone, was broad and deep enough to command the exclusive attention of its devotees" (Prudden [1]).

Dr. Welch was among the first to take up and teach the new science of bacteriology in this country, after having returned from some four years of study in various schools in Continental Europe—Breslau, Strassburg, Leipzig, Vienna, and Berlin. He held the chair of Pathology at Bellevue Hospital Medical College, New York, from 1879 to 1884, when he moved to Baltimore as Professor of Pathology of the Johns Hopkins Medical School, a position he held until 1916, when he became Director of the School of Public Health in the same institution. From 1893 to 1898 he was Dean of the medical faculty there and was one of the original four in the Medical School, the others being Drs. William Osler, William S. Halsted, and Howard A. Kelly, the last being the only surviving member of the group.

Dr. Welch's interest in bacteriology was always great and it was natural that he should develop great interest in public health, which constantly grew and culminated in the establishment of the School of Public Health, of which he was the first Director, and the funds for which were obtained through his influence.

He was one of the first to see the importance of the antituberculosis movement in this country, was active in the formation of the National Tuberculosis Association, and became its President in 1910.

He has been connected with the Rockefeller Institute, of New York, and the International Health Board since their foundation, and has had great influence in determining donations of Mr. Rockefeller to the advancement of public health, and medical education. Since 1901 he has been President of the Board of Directors of the Rockefeller Institute.

It is to be regretted that Dr. Welch did not embody his experiences in a volume, though numerous addresses have been collected by his friends. He was born just before Pasteur began to publish the story of his discoveries. He saw the birth of the so-called germ theory of disease, its rise, and its proof, and witnessed the isolation of all the pathogenic organisms, both vegetable and animal, now known to us. Truly he lived through the most remarkable period of the world's history, and a chronicle from his facile pen would have been invaluable.

Perhaps no scientific man who has ever lived had as many honors as Dr. Welch. From every part of the world came degrees and titles. He was a facile speaker, always charming and always carrying his audience with him.

His personality was delightful. He was approachable, genial, interesting, a friend of young men, and ready to give credit to every beginner. He has probably done more to stimulate work and encourage scientific men than any other teacher in America. Apart from his teaching, he was interested in all public

health movements, serving on boards and engaging in many other activities for the public good. He was President of the State Board of Health of Maryland from 1896 to 1922. He was a charming host, and delighted in entertaining distinguished men who visited this country, but always included among his guests not only those closely connected with him in his work, but other young scientists who might be available.

His life has been a striking example of devotion to science for science's sake. Commercialized, his salary could have been easily more than a hundred thousand dollars annually; yet for practically all his life, it was only the modest stipend of a professor.

During the World War he was one of the first to go into the service of the country in 1917, as a Major in the Medical Corps, being advanced in 1918 to the grade of Colonel. He spent much of his time in Washington, where his advice to the Medical Department of the Army was invaluable. The soldiers who were engaged in the World War owe much to his wise counsel for the care taken of them.

He has been a member of the Laboratory Section of the Association since 1917, and was made a Charter Fellow in 1923. The Association as a whole mourns his loss and pays tribute to his memory.

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THE MEDICAL EXAMINATION OF FOOD HANDLERS

THE outbreak of amebic dysentery in the City of Chicago in the summer of 1933 has excited unusual interest. Nothing was published about it until October 9, when a paper was read before our Laboratory Section at Indianapolis. Cases have been traced to more than 200 cities, including some in Canada, which had their origin in Chicago. The Public Health Service was called on and two news letters were sent out regarding it. In February, an article on the subject appeared in the *Public Health Reports*.[1] It is known that carriers of the *Endameba histolytica* are found fairly commonly, and one great question which comes up for discussion is the advisability of examining food handlers. On this there is diversity of opinion. Some health officers believe it to be ineffective and that the expense is not warranted by the results. Extravagant statements are made against it by some, one former health commissioner going so far as to call it a "worn out superstition of public health."

In the article referred to there is a good deal about the examination of food handlers, especially in regard to those carrying amebae. The tone is negative, and every possible difficulty and objection is pointed out. The author speaks of the inadequacy of methods, the number of examinations necessary to give a conclusive answer, the intermittency of the carrier condition, the time, effort and expense involved, and the difficulty of controlling carriers when detected. The danger of carriers is recognized. The opinions of the two schools of protozoölogists are spoken of. The difficulty of, and errors in, diagnosis are mentioned, but do not seem to be a good reason for not trying to prevent the ailments from which those infected suffer. Finally, the author states that even a positive report will be misleading, since a cyst carrier may be suffering from a condition not related to the presence of the protozoa. In the face of conditions which exist, we

believe that the positive and not the negative side of the question should be taken.

We cannot but recall the outbreak [2] on the Steamship "Rochester" in 1913—300 passengers; 235 traced; 122 cases of gastroenteritis, 42 cases typhoid-like; 5 deaths. Cause—a meat cook with profuse diarrhea in febrile stage of typhoid. We remember also Typhoid Mary, who according to the last accounts which we have, has been the cause of 57 cases of typhoid fever, with 3 deaths, and there are some who believe that she was responsible for the infection of water which caused the epidemic in Ithaca, N. Y., in 1903. We also recall the case of "H.O." who though not a food handler, infected the water supply of a ship by using the common water supply. In regard to all of these cases, we would ask whether or not the examination of food handlers would have been worth while?

There is no doubt that the examination for amebae offers greater difficulties than does the examination for bacteria, and there is recent evidence that carriers do not play as important a part as they do in bacterial diseases, but the general principle remains unchanged. A recent survey of 2,000 food handlers in New York City [3] shows a total of 35 cases of latent adult tuberculosis, and 46 cases of active pulmonary tuberculosis. Can the employment of people with active pulmonary tuberculosis in such callings be justified? Can they be detected without examination?

As to the carrier condition, we know of no better statement than that made by the late Dr. Henry J. Nichols.[4] The article under discussion indicates that there is nothing to do with food handlers except to educate them in personal hygiene, which all recognize would be a valuable means of prevention, but the question is raised as to whether they can be made sufficiently conscious of the menace to make this measure effective. Dr. Nichols says that carriers may be instructed in personal hygiene, but that if they do not respond to social obligations, restrictive measures must be applied. In the instance of Chicago, in spite of the recent report of the special committee, it would have paid handsomely to have had an officer stationed in the toilet rooms to enforce observance of the rules laid down by the committee.

On the question of the results justifying the expense and trouble, Nichols points out that "as scientific knowledge increases, there is an increasing demand for its application in the amelioration of human life." In regard to the difficulties on the administrative side, he says: "But one point should be kept clear. The interests of the group of [or] race are supreme over those of the individual. This decision has been handed down by Nature and by Society and other decisions must conform."

We have recently spoken of the movement in New York City, where a committee is urging the public to demand cleanliness in eating places. This movement will be carried out largely through education of the public. While the public may be apathetic in many cases, there is no question that when there is proper education there is a growing demand for the application of scientific facts to public health.

The article also questions the advisability of treating all food handlers with amebicides in the present state of our knowledge, though recognizing the necessity of treatment of recognized clinical cases, even though mild.

From the scientific standpoint there is perhaps nothing in this article which can be found fault with, but published in the official organ of the Service, we believe it is liable to do a great deal of harm. Similar difficulties have confronted

us in the control of all contagious diseases, and if we had sat with our hands in our laps looking only at the difficulties and not for means of overcoming them, we would be in a sorry condition today, whereas the advances we have made constitute one of the great features of which the medical profession has good reason to be proud. We look for leadership in progressive measures for the protection of health, rather than a negative attitude or a recital of difficulties.

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LETTER FROM GREAT BRITAIN

THE DROUGHT, THE WATER SUPPLY, AND DISEASE

The description of the British climate alleged to have been applied by a visiting American as, in fact, no climate at all but merely a series of samples, is one that the average Briton accepts as at once witty and accurate. Variability is undoubtedly one of the characteristics of the weather, the variations commonly suffered including as a rule a rather generous allowance of rain.

Up till the last 12 months or so, at any rate, this seems to have been the case. During that period, however, the variability has taken the direction of an omission of rainfall, and as a result the members of the population, considerable in number, whose entire subject of conversation is the weather, having to take a new line, find it less easy to maintain an even flow than in the days when the drip of falling water was there to provide an accompaniment.

The absence of conversational openings, the result of the drought, is, of course, most noticeable in the urban areas where precautions have been taken to guard against shortage of supply. In rural and outlying districts the situation is different, and in government and official circles the view taken steadily becomes more serious, and very real efforts have been, and are being, made made in order to assist in securing and increasing supplies.

So far as the taking of serious views is concerned, the lay press has tried very hard to be helpful by indicating the terrible things that are happening, and predicting that though results even more terrible will occur if the drought continues, those that will ensue upon its termination will be catastrophic. Most of the effects, it is hardly necessary to say, are or will be upon the health of the people. The prevalence of infectious disease, in particular, the press believes to be certain to be affected.

Curiously enough, in spite of all journalistic effort, there has been little evidence of increase in the amount of infectious disease generally throughout the country. In some areas the number of cases of measles has been greater than in 1933, but this had been anticipated, and is in accordance with the character of this disease and the normal course of events. Scarlet fever in certain places has also been slightly more prevalent, but the rise here again is the ordinary periodic one. The fact that there appears to be an increase in the number of adults who have contracted this infection is one that has been the subject of mention. The explanation suggested for this is, of course, that as a result of the reduction in the amount and virulence of the disease during recent times, numbers of persons escaped infection in childhood, or if

they acquired it, had conferred only a transient and very minor degree of immunity.

So far as can be made out there has been no exceptional prevalence either general or local of enteric fever or intestinal complaints, though, as the press has suggested, this may appear when the drought really breaks and there comes the heavy and prolonged fall of rain that so many so very ardently desire.

THE SEASON OF CONFERENCES DRAWS NEAR

In spite of the drought, the slum clearance drive and everything else, preparations go steadily ahead for the various congresses and conferences that are held annually during the summer and early autumn months. Most prominently, of course, is the health congress of the Royal Sanitary Institute, which is fixed for July 9–14.

The venue on this occasion is Bristol, a city attractive of itself, historically and otherwise, and set in most pleasant surroundings. Recently it has come into prominence in public health circles on account of the setting up within the university of a department specifically concerned with preventive medicine and the carrying out of works of this type on behalf of the city, the main connecting link between the university and the municipality being the Medical Officer of Health (Dr. R. H. Parry) who has been appointed to the chair of preventive medicine.

The arrangements so far as the health congress is concerned are largely on the lines followed at the American Public Health Association conference, questions being grouped for discussion at appropriate sections or meetings of specialist officers. Housing and slum clearance being, as I have mentioned in previous letters, very much to the fore at the moment, will receive a great deal of attention, and the Minister of Health himself (Sir E. Hilton Young), no less, has promised to attend and address the congress on some aspect of the housing problem.

Another matter exercising many minds at present is the problem of mental deficiency. This is to be discussed at a joint meeting of the preventive medicine section and the conference of medical officers of health.

LINKS WITH THE A.P.H.A.

The President of the Society of Medical Officers of Health (the individual who signs this letter) will preside over the meeting, and will have the support of, among others, Professor W. W. Jameson of the London School of Hygiene. Professor Jameson has only recently returned from a visit to India and the East, made at the instance of the Rockefeller Foundation, along with Dr. F. F. Russell, the Director. A further claim to particular distinction possessed by Professor Jameson is that he is the junior member of the small but very proud group of Honorary Fellows of the American Public Health Association in this country.

Talking of honorary fellowships, perhaps I might be permitted to refer to the great pleasure it gave me to be present at the meeting of the Royal Sanitary Institute when Professor Haven Emerson was elected an Honorary Fellow of that body. The honor of fellowship, such as it is, I am certain has never been more worthily conferred than in the case of Dr. Emerson, nor have I known a proposal that it should be offered received with greater warmth.

CHILD WELFARE AND TUBERCULOSIS

To return to the subject of conferences and congresses, I may note as a matter of interest that the usual annual conference on maternity and child welfare this year is to be held during National Baby Week in Birmingham from July 3 to 5. The

main subject for discussion is the causation of neonatal deaths. A report on the measures taken to reduce neonatal mortality and the results so far achieved is to be presented by Dr. G. F. McCleary. Dr. McCleary, who was formerly a Medical Officer of the Ministry of Health on the national health insurance side, has many friends in the United States, having visited and also, I understand, lectured on insurance questions in a number of medical schools and universities.

Other matters down for discussion at the conference are orthopedic work among preschool children; the new approach to social work, and the solution of nutritional problems. The maternity and child welfare group of the Society of Medical Officers of Health holds one session at the conference for the purpose of discussing the prevention of tuberculosis in the child under 5.

For the more general consideration of questions relating to tuberculosis the National Association for the Prevention of Tuberculosis is to hold its annual conference—the twentieth of the series—in London on June 14 and 15. The conference is to take the form of an all-round discussion upon the experiences gained during the last 21 years as a result of the operation of the national tuberculosis scheme. Since the conference is to be in London, it may be anticipated that the gathering will be a particularly brilliant and representative one, and that contributions of great moment will be made to the discussion: even, perhaps, something in the nature of "pronouncements."

London CHARLES PORTER, M.D.

EDUCATION AND PUBLICITY*

What Health Education Is

Public health education may be broadly defined as the act of making health information public by technics which arouse, stimulate, and guide motives for healthy living. It is the imparting of knowledge whereby the individual may understand what is his birthright in terms of health and longevity, and gain information of methods and facilities for preserving this birthright. —Ira V. Hiscock in *Transactions of National Tuberculosis Association, 1933.*

More about Syracuse—In the March and April, 1934, issues we suggested the interest and value in the reports by Professor Winslow and Miss Bache on adult health education during the Syracuse Demonstration.

We also called attention to the absence from both reports of information as to the basis of a health education program.

The following from Dr. George C. Ruhland states very clearly the thought of the Commissioner of Health during the Syracuse Demonstration:

I feel that it is not quite just to Syracuse to say that the health program there proceeded without thought of the philosophy of health education and a program. Possibly we disagree with regard to what is meant by a philosophy or a program. So far as the Syracuse Health Demonstration is concerned, the program devoted its health educational work to the stimulation and promotion of a popular interest in recognized branches of public health activity. I do not conceive a program in public health as the promotion of only one major objective to the exclusion of other health needs—as—for example—to stimulate the building of a hospital or the establishment of special (tuberculosis) clinics. While these may be major objectives in a given health program, they manifestly cannot monopolize the publicity so far as this is sought through the public press.

In fact, it is my philosophy that public health education must recognize that variation of the theme is most important if public interest is to be held—quite apart from the fact that papers will not be interested to publish stories on the same theme week after week and month after month. We must be opportunists in the publicity that we solicit for health education. I think you will get what I mean if you will ask yourself the question: "What should have been *the* program for Syracuse?"

The very fact that the Demonstration was conceived to apply all that was known and found worth while in public health practice made it of necessity a program with multiple features.

Questions about Adult Health Education—Some questions raised by Professor Ira V. Hiscock about health education addressed to adults:

Has our program been planned so that it will not be spread too thin in the effort to reach the whole public? Has the emphasis been properly placed as to subjects, and to groups to be reached? Have we featured health in too general terms and failed to stress specific topics? Have we used the most effective technics? Have we sufficiently tested our methods on a small scale before attempting an extensive mass education project? While we may not be able to answer all of these questions in this session, it would seem desirable that we periodically take account of stock, and consider more fully some

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York, N. Y.

of the problems and the possible returns from the energy and funds expended in the name of public health education. . . .

Public health education should keep abreast of science, but never overstep the principles which have been established. Health facts can be presented clearly through simple words and obvious and attractive illustrations. Chief among the channels of instruction, to be later discussed, are newspapers, bulletins, folders, pamphlets, magazines, radio talks, motion pictures, exhibits, posters, and public addresses. These instruments, properly used, are all of assistance in their twofold object of securing popular support for the community health program, and of bringing into contact with physicians and other professional personnel the individuals who are in need of their services. "Mass methods of this kind form, however, only a first step toward the goal which is in view. Education in hygiene is after all a very personal matter. The kingdom of health, like the Kingdom of God, is within you" (Winslow). The personal contacts of the public health nurse and of other health workers, in many respects, constitute our most effective means of health education.

"The Philosophy of Health Education," *Transactions of National Tuberculosis Assn., 1933.*

Honolulu Reports—From Hawaii comes one of the most interesting and effective of health agency annual reports. "Palama Settlement's 38th *Year of Concern for Honolulu's Needful.*" Note the italicized phrase. An aerial map of a section of Honolulu covers most of the two cover pages with an unobtrusive insert of the Settlement buildings and an arrow pointing to their exact location. The title fills the space above the skyline of mountains at the top of the aerial view.

The contents are well selected, well laid out, and the story is told in terms of human beings rather than abstract phrases.

The open pages seem just right for the combined silhouette-outline sketches. The Wortman cartoon, a clinic interior from *New York World-Telegram* is available for use by any health agency. The 6 by 9½ inch envelope is given distinction by broad bands of blue (about 2 inches wide) across each end in which "Palama Settlement" and "For the Promotion of Public Health and Social Welfare" appear in white letters.

"Aloha!" to Dr. Philip S. Platt, also the printer, and others who may be concerned.

Again "Yellow Jack"—Says Leon Whipple in *Survey Graphic* (May, 1934. 112 East 19th St., New York, N. Y.) about the play now being shown on Broadway:

Yellow Jack is not propaganda unless to inspire us in the ancient war of Man against Death. It is a significant experiment in translating to the stage a great moment in race history—the conquest of yellow fever in Cuba in 1900 by Dr. Walter Reed and his heroic colleagues of the Yellow Fever Commission. It is a success for with the simplest devices of stage levels and spot-lighting, it makes vivid and comprehensible this struggle of science and human courage, to audiences so absorbed that they do not notice there is no intermission. Here is one of the great forces of modern life, in shirtsleeves, gambling with death, the villain a tiny mosquito. Graphic scenes of emotion, humor, laboratory ritual unroll new understanding of how old and new schools clash, how doctors and plain men sacrifice life for other lives, what spiritual force it takes to ask such sacrifices, how the triumphs of science are mingled of the fanatic hunches of a Scotch Dr. Finley, the inspired imagination of a Walter Reed, the precise experiments of martyrs like Lazear.

Two Main Lines—The seventh annual report of Bellevue-Yorkville Health Demonstration says:

Broadly speaking, there are two main health educational methods which can be employed in acquainting the public with the teachings of preventive medicine, and in influencing them to seek medical advice and treatment. The physician, the teacher, the public health and clinic nurse, and the social worker—all these can do and are doing constructive and most effective work in the field of public health education. The work of these special agents can be supplemented by

a general campaign to popularize health knowledge through literature, meetings, radio talks, exhibits, newspaper, publicity, etc.

Public health education in the field of preventive medicine has generally employed both methods. A review of health educational campaigns would show that it was necessary to prepare for this work those who come in direct contact with the general public and, on the other hand, that it was important to carry on campaigns on a large scale by the written word in order to solidify these efforts and awaken the community to its responsibilities; for measures of prevention and control of preventable diseases have only succeeded as rapidly as public opinion was ready to support these measures, and general campaigns have helped to prepare public opinion for this.

Four pages in the 1933 mimeographed report outline the major campaigns carried on in 1933 and the publications issued. Bellevue-Yorkville Health Demonstration, 325 E. 38th St., New York, N. Y.

"Humanizing Education through Dramatization"—Under this title we are told that

Dramatics are the natural expression avenue of activity on the part of pupils. Humanized education through dramatization seeks to build around the child's instincts, impulses, and interests, and enrich his experiences through the interpretation of emotions. . . .

The aims and objectives of dramatization are divided into two classifications, information and entertainment. Each has its contribution to make to the curricular and extra-curricular activities of the school.

A swift survey of the types of the plays, pageants, and puppet shows reveals numerous published productions on the market. While these are elaborate in design and colorful in conduct, they definitely lack in the creative contribution an original performance by pupils has. . . .

The informal play given spontaneously makes a valuable contribution in vitalizing and humanizing the curricula. Here the teacher acts as a guide, encouraging and assisting. The responsibility and initiative rest with the group. The children select scenes, choose characters, and arrange equipment. The characters converse impromptu and gesture and move impulsively. The success of this type of dramatic activity will depend somewhat upon the child's experience and background in the pantomime, portrayal of moods, character sketch, and the tableau. An informal play affords excellent opportunity for coöperative group work. It stimulates interest in writing original plays.

The authors discuss briefly various dramatic forms: formal plays, pantomime, character sketch, tableau, pageant, puppet and marionette, and call attention to both disadvantages and advantages of the play medium for use with children. The emphasis is upon pupil-planning, but they grant that

Formal plays written for children have a place in the educational program. Their reproduction affects a form of study which may be correlated effectively with the subject matter studied. Such selected plays should be carefully considered in light of the richness of content and opportunities for forming correct concepts.

—by G. W. and N. D. Wright. *Educational Screen*, 64 E. Lake St., Chicago, Ill. April, 1934. *25 cents.*

Health Education as in Boston—Author C. V. Wilinsky has sent us a copy of The Health Units of Boston, a report for 1924–1933 of the health centers conducted by the Boston Health Department, but financed by a private fund. The health education chapter says:

In the sense in which it is used in a health department "health education" means procedures that teach to the community ways of gaining and maintaining good health. As the economic conditions of a community become more and more a problem, the work of the health educator becomes a more vital factor. If the health standards of the city are to be maintained, if maternal and infant deaths are to be reduced, if there are to be fewer deaths and cases of communicable diseases, if the degenerative diseases are to be kept under control, health education must be carried on. People must be taught how to make the best possible use of the limited means available to them. They must be taught how to spend their money in a way that will keep them in good physical condition; to spend it so that their children will not suffer markedly from malnutrition. They must be taught how to

make their homes conducive to healthy living, in spite of the fact that, many times, more than one family must live in a small tenement. They must be taught scientific methods of preventing certain diseases and given instruction on healthful living in general.

How Boston makes the application is outlined in the report.

Value of Health Propaganda—Recently a session of the Section of Medical Sociology, British Medical Association, was devoted to this subject. Three papers, written from the point of view of (1) the administrator, (2) the practitioner, and (3) the press, "had been circulated beforehand among the speakers invited to join in this discussion."

The opponents of health propaganda appeared to object to it most strongly because it "accentuates that morbid absorption in his, or her, own health on the part of individuals, which is one of the worst vices of our time." Another speaker said that "To teach healthy habits to the young was valuable, but to make the young think about their health implied failure." And another warned against making hypochondriacs. There are several supporters of the belief that health services and treatment are in themselves adequate methods of spreading health knowledge.

Those who approved of propaganda argued on the ground of changed attitude of parents toward school medical service, the need for overcoming suspicion of employees toward the idea of periodic medical examination, and the necessity of keeping the public in touch with the progress of medical science. There is general approval of the use of the press.

"With Our Contributors"—Do we make the most of the personalities and the background of the contributors to professional and popular health journals? Various general and special magazines give interesting notes about their contributors. They, too, usually bury such material where it must be searched for. What seems the better practice is that adopted by *Saturday Review of Literature*, New York, N. Y. Here the notes follow the articles in the form of a brief paragraph printed in italics.

Understanding The Child, Massachusetts Society For Mental Hygiene, Boston, Mass., is an example of a health periodical providing information about its contributors. But one must turn each time to a back page to learn about the author of an article.

"Contents" versus "Index"—The generally accepted form and location of the index and the table of contents is not followed in a number of public health reports. The customary use is to place "contents" at the front, and "index" at the back. The table of contents is a list in the order of appearance; the index is the indication, more detailed than the contents, under whatever classification in abc order will make it easily possible for the reader to locate whatever material he is looking for. Reports and other publications will be more usable and therefore more useful as these forms are followed.

A New Title for an Old Job—"Consultants in Social Work Interpretation" has replaced the exhibit division of the Department of Surveys and Exhibits as the covering title for the work of Evart G. and Mary Swain Routzahn, staff members of the Russell Sage Foundation. This is a change in name only and does not affect the nature of the work done. The exhibit, earlier recognized as an important tool for public education, has for some time been absorbed into the broader field of educational publicity in the Depart-

ment's studies. The exhibit division was originally started at the request of a group of national health and welfare agencies, and the broadening of the work was in response to the rapid evolution of education and publicity in all of those fields.

Fifty West Fiftieth Street—This address is now to be substituted for 450 7th Avenue which has been given here so many times for various national health agencies which have been housed for so long in one office building.

Popular Books on Health—"Books Of General Interest For Today's Readers"—has been

> . . . prepared to meet the demand for a list of simply written, informative, and readable books suitable for use in connection with the current adult educational activities being conducted by the government and other agencies. . . . The widespread distribution of this list has been made possible by the generosity of the General Education Board.

Under "Health" are listed: "The Care and Feeding of Adults," by Clendening; "Our Common Enemy: Colds," by editors of *Fortune;* "Yourself and Your Body," by Grenfell; "Eat, Drink and Be Healthy," by Lieb; "Diet and Health," by Peters; "Health Through the Ages," by Winslow and Hallock; "Family Food Supply," and "Three Meals A Day," Metropolitan Life Insurance Company.

Copies from American Library Assn., 520 N. Michigan Ave., Chicago, Ill. *25 cents.*

What do you think of this list for its stated purpose? Would your list vary from the above?

SCHOOLS AND CHILDREN

"Light and Shade" is a chart to accompany "Health Through the Ages," both issued by Metropolitan Life Insurance Co., New York, N. Y. A picture record from "Prehistoric Times: The Ages of Fear" down to the "Period of Rapid Scientific Advance."

> Yellow area represents the gradual progress man has made in acquiring and applying scientific knowledge, in advancing health, and lengthening life.
>
> Blue area represents gradual decrease in superstition, in reliance on magic and incantation, and in guesswork in dealing with problems of sickness and health.

"Health Instruction in Grades IX-XII," by J. F. Rogers, M.D., Office of Education. 22 pages. Supt. of Documents, Washington, D. C. *5 cents.* A readable review of "the struggle of hygiene for a place in the high-school program," and the present status of health instruction.

The tentative list of topics for *Health Bulletin for Teachers,* 1933-1934. Metropolitan Life Insurance Co. *Free.* Sept., You and Your Community; Oct., The Water We Use; Nov., The Wastes of the City; Dec., Your Milk Supply; Jan., Your Food and Your Drugs; Feb., Working Together to Control Germ Diseases; March, The Health of the Child; April, The Health of the Teacher; May, The Doctor, the Dentist, and the Nurse; June, The Year's Progress in Health.

LEST WE OVERLOOK

Statistical Bulletin, Metropolitan Life Insurance Co., New York. Monthly review of varied health statistical data. *Free* to health and social workers, physicians, economists, statisticians, actuaries, editors, and libraries.

"Health," a department in *The Survey,* 112 East 19th St., New York. A midmonthly department on public health for social workers edited by Mary Ross. *$3.00* per year. Sample *free.*

EDUCATION AND REFERENCE

The most usable and easily available set of examples of diverse types of charts and diagrams is supplied upon

request by Merwin-Davis, 144 E. 86th St., New York, N. Y. There are 7 sheets, 8½ by 11 inches, carrying classified examples: bar and column charts, line and surface charts, circle diagrams, decorative charts, miscellaneous charts, maps, uses for charts. "Bar and Column Charts" includes 24 examples, including 4 samples of spacing.

When they were first issued in 1933 we overlooked an exceptional series of sex education booklets issued by American Medical Assn., 535 N. Dearborn St., Chicago, Ill. Written by Thurman B. Rice, M.D., the titles make clear the contents to which engraver and printer have given an attractive setting: "The Story of Life for Boys and Girls of Ten Years"; "In Training—for Boys of High School Age"; "High Life Goes On and On—for Girls of High School Age"; "The Age of Romance"; "The Venereal Diseases." *25 cents;* set for *$2.00.*

"Mass Education," by Bertrand Brown. Milbank Memorial Fund, 40 Wall St., New York, N. Y. 30 pages. *25 cents.* Reprint from *Quarterly Bulletin* of the Fund. Reviews the main elements in mass education, and their use in adult health education. *Only a few copies left.*

"American Vitality Maintained in 1933" is treated in *Statistical Bulletin,* Metropolitan Life Insurance Co., New York, N. Y. Jan., 1934. *Free.*

Nursing service anywhere, of any type, under any auspices may use to advantage illustrative material offered by N.O.P.H.N., 50 West 50th St., New York, N. Y. A poster on paper (*20 cents*) or on card with easel back (*30 cents*), 14 by 24 inches. Less 5 cents each for 12 or more. Four half-tones, 2¾ by 3½ inches, each *$2.50,* or glossy prints 7½ by 9½ inches, same subjects, *50 cents* each. Ask for illustrated folder.

"Maternal Mortality in New York City," by Ransom S. Hooker, M.D. Abstract of the report which attracted so much attention. Reprint from *Health Examiner.* New York Academy of Medicine, 2 E. 103d St., New York, N. Y. *10 cents.*

"Health Services Tomorrow and Factors Determining Them," by Dr. Thomas Parran, Jr. *Public Health Reports,* Washington, D. C. April 13, 1934.

"Publications on Preventing Blindness." 1934 list of publications. National Society for the Prevention of Blindness, 50 W. 50th St., New York, N. Y. *Free.*

"Answering the Call," a visiting nurse poster in color, with "When you are sick send for the Metropolitan Nurse." Metropolitan Life Insurance Co., 1 Madison Ave., New York, N. Y.

From the Metropolitan Life Insurance Co., 1 Madison Ave., New York, N. Y., comes a new edition of "The Baby." With a delightful baby face on the cover; 31 pages of text; *and an index. Free.*

"Diphtheria," with 2 pages of carefully selected, essential information, clearly presented. Metropolitan Life Insurance Co., 1 Madison Ave., New York, N. Y. *Free.*

American Social Hygiene Assn., 50 W. 50th St., New York, N. Y., offers the following:

"Choosing a Home Partner," by N. W. Edson. 11 pages. *10 cents.*

"Health for Girls." 14 pages. *10 cents.*

"The Question of Petting," by M. J. Exner. 13 pages. *10 cents.*

"Sex Education in the Home," by H. W. Brown. 14 pages. *10 cents.*

"The Social Hygiene Program—Today and Tomorrow," by C.-E. A. Winslow. 24 pages. *10 cents.*

HONORABLE MENTION

To Quebec Provincial Bureau of Health: for a limited "Table of Contents" in annual report.

To Milwaukee Health Department:

for an annual report which does not look like the output of an "official printer," and which has both "Contents" and "Index," and includes a section on "Health Education."

LANTERN SLIDES

A series of 13 charts on "Gonorrhea in the Male," available in miniature for *10 cents* a set, are now issued as lantern slides, for sale or rental. American Social Hygiene Assn., 50 W. 50th St., New York, N. Y.

MAGAZINE ARTICLES

Here is background material; quotable matter; suggestions as to style and organization in writing.

"Marie Stopes, Crusader," by P. Allen. *Pictorial Review.* April, 1934. Sketch of the British Museum lecturer on paleontology who overthrew tradition so that the Ministry of Health now supervises birth control clinics.

"Arms and the Men." *Fortune,* 350 E. 22d St., Chicago, Ill. March, 1934. *$1.* A devastating factual statement (illustrated) of munitions making as a chief source of war making. "Their axioms: (a) prolong war, (b) disturb peace."

"The Chicago Epidemic." *New Republic,* 420 W. 21st St., New York, N. Y. Feb. 28, 1934. *15 cents.* "Chicago is proud of its fire, its fair and its epidemic."

"Cinchora—Quinine to You"; "The Great Radium Mystery"; "State Housing: American Style." *Fortune,* 350 E. 22d St., Chicago, Ill. Feb., 1934. *$1.* Background material beyond public health aspects.

"Consolidated Cows." *Fortune,* 350 E. 22d St., Chicago, Ill. May, 1934. *$1.* Background material on milk and milk products distribution. Milk bottle illustration may suggest a cover design for a "milk issue" or pamphlet.

"A Dental Clinic on Wheels," by Helen Hall. *Journal,* National Education Assn., Washington, D. C. March, 1934. Traveling clinic of Little Rock public schools. Illustrated. *25 cents.*

"Food for Athletes—And for All," by H. Ripperger. *New York Times Magazine.* April 1, 1934. (In many public libraries.)

"Freedom to be Young," by Karl N. Llewellyn. *Today,* 152 W. 42d St., New York, N. Y. March 10, 1934. *5 cents.* An understanding, but impressive statement of opposition to the Child Labor Amendment—and the answers.

"Getting Well Again," by M. M. Miller. *Delineator.* April, 1934. "Forethought and intelligent handling to avoid some of the pitfalls which result in prolonged difficulty for the (sick) child and for the family."

"Health against Odds," by Louis I. Dublin. *Woman's Home Companion.* April, 1934. "Since the beginning of the depression, when all sorts of values have been undermined if not destroyed, human life and health have stood up singularly unaffected." "A growing and very real hazard to the public health, however, now emerges from the economic situation."

"Heap Bad Medicine," by J. Mitchell. *New Republic,* New York, N. Y. Nov. 8, 1933. The fight against legal control.

"Paying Doctor's Bills," by Mary Ross, public health editor of *The Survey.* In *Today,* 152 W. 42d St., New York, N. Y. March 17, 1934. *5 cents.* "Is medical care to continue as a private business arrangement or become a social right?" With full page illustration: "America meets the needs of every economic class in education and public safety. Full medical service as well must be brought within the reach of all to complete the circle of social protection."

"Public Health and Private Doctors," by D. L. Worcester; "Nurses Show the Way," by C.-E. A. Winslow;

"Sickness and the New Poor," by Edgar Sydenstricker; "Change Comes to the Doctor," by M. M. Davis; and numerous illustrations appear in *Survey Graphic,* 112 E. 19th St., New York, N. Y. April, 1934. *30 cents.*

"The Safe Prenatal Diet," by Dr. Kate Daum. *Herald-Tribune Magazine,* New York, N. Y. Feb. 25, 1934.

"Tramp, Tramp, Tramp, the Girls Are Marching," by Margaret Fishback. *Delineator.* April, 1934. "Another point in favor of walking, as our country's fad for 1934. It's as convenient and thrifty as it is healthy and smart."

"Wasting Women's Lives," by H. H. Smith. *New Republic,* 421 W. 21st St., New York, N. Y. March 28, 1934. *15 cents.* "The frightful toll of abortion."

"Who's Who in the Drug Lobby," by James Rorty. *Nation,* 20 Vesey St., New York, N. Y. Feb. 21, 1934. *15 cents.* Patent medicine connections of opponents of drug bills.

"Young Doctor Heat," by Paul de Kruif. *Ladies' Home Journal.* April, 1934. "Old Doctor Sun is the best physician I know, but when he is not on the job I'm beginning to bank on his assistant, Young Doctor Heat."

NEW

At least new to us: *Chats,* Division of Public Health Nursing, State Dept. of Health, Albany, N. Y. Book shape; mimeographed; undated; 35 pages.

BULLETINS

Attention is called to the monthly *Bulletin* issued by the American Society for the Control of Cancer, 1250 6th Ave., New York, N. Y. The 12 pages monthly contain short practical articles written by authorities as well as news relating to cancer research and cancer therapy. "It presents an easy and practical way of keeping abreast of cancer control progress." *$1.00* a year; a sample free upon request.

It seems a pity that "Mark Time" and his pal, "Ben Hustler," should be limited to the fairly exclusive audience provided by *Public Health News,* New Jersey State Dept. of Health. Would it be worth a test to send this copy to the newspapers of the state in advance of publication in *Public Health News?*

"Meeting the Challenge of Rural Public Health," by Elma Rood, is a feature running in *Bulletin,* Kentucky Board of Health, Louisville:

> Elizabeth Baker, a public health nurse, working in a pioneer field in far away Michigan, exchanges letters with her good friend and old schoolmate, Frances Brown, a rural teacher in the mountains of Kentucky. Each tells the other how a challenge in public health is being met and answered in their respective states.

"The Babies," with quotation from Mark Twain; "Prosperity Babies," "Ten Years of Combat with a Foe of Happy Childhood" (diphtheria), "Babies and Tuberculosis," "Safe Milk for the Babies," "The Baby's First Birthday," and a display page about diphtheria make up an effective "baby number" of a health department bulletin, with good use of local statistics and service information. This March, 1934, number of *Health,* Dept. of Health, New Haven, Conn., carries the following on the cover:

> New Haven possesses all the facilities necessary to the safeguarding of the new-born infant and the preschool child. The reason our prosperity in Baby Welfare *has not as yet reached its full fruition is because parents do not fully understand or utilize the varied opportunities.*

Michigan Public Health, State Dept. of Health, Lansing, is one of the bulletins making good use of excellent copy first appearing in other bulletins, much of which is too useful to be limited to one city or state.

Santa Barbara, Calif., *Bulletin* used a large mimeographed "dollar" to show

how the medical-health dollar is spent. "Prevention or Cure—Which?"

"Hunger for Health Facts," by Iowa State Dept. of Health, Des Moines, tells what was wanted by 1,034 people at the State Fair. More than 15,000 pieces were requested. Washington and New York were among the outside states represented.

"Recovery and the Health Department," by D. J. Sullivan. *Health Bulletin*, New Jersey Tuberculosis League, Newark, N. J. March-April, 1934.

MOTION PICTURES

How to get that local motion picture is told in "Featuring a County Health Program in Motion Pictures," by L. C. Coleman, M.D., in *Bulletin*, State Board of Health, Louisville, Ky., Jan., 1934.

> The Madison County Health Department has recently inaugurated an additional educational feature, in the form of a film designed to give a complete motion picture of the whole public health program in the county. This film, which is in two reels and is the production in which Dean Rumbold of the Eastern State Teachers College rendered invaluable assistance, has been altogether financed by the civic and women's clubs of Richmond and Berea, with no iota of pecuniary expense to the Health Unit, the county or the state. It constitutes a résumé in pictures, with appropriate titles and reading material, of all the different activities of the Health Department. . . .
>
> At this writing, the film has been shown to 8 different audiences, and there are numerous appointments for showings after the first of the year. The measure of enthusiasm which it has so far uniformly elicited would seem to justify the confidence that, in this film, we have an addition to our educational program which will materially assist in bringing about an even greater degree of coöperation than now exists between the citizens of Madison County and the Health Unit.

"Street Safety — for Advanced Grades," and "Street Safety — for Primary Grades," are two new pictures by Eastman Teaching Films, 343 State St., Rochester, N. Y. 16 mm silent; outright sale only.

"1,000 and One" is the 1934 edition of "the blue book of non-theatrical films, their producers and distributors. Includes "Physiology, Health and Hygiene." *Educational Screen*, 64 E. Lake St., Chicago, Ill. *75 cents.*

REPORTING

"Milwaukee's Health—1933" is the cover text of an especially pleasing annual report of 20 pages with cover. The ivory paper, frequent headings, selected illustrations, diagrams, and tables promise to serve this stated purpose:

> This condensed report of the Milwaukee Health Department is published for the use of individuals and organizations interested only in general health information.
>
> More detailed information may be obtained from complete reports filed in the Health Department, Municipal Reference Library and with the Mayor and Common Council.

An even more condensed report appears in the March, 1934, issue of *Bulletin*, Milwaukee Health Department.

"Reflections of 1933," and a baby picture with its reflection in the background, make up the cover of the annual report of the National Society for the Prevention of Blindness, 50 W. 50th St., New York, N. Y. "Highlights of 1933"; no financial statement; 8 pages and cover.

"Union Health Center" is a small booklet reviewing 20 years' history and the services offered by this center which is maintained by two score labor unions. At 131 E. 17th St., New York, N. Y.

BOOKS AND REPORTS

Hygiene of the Mind—*By Baron Ernst Von Feuchtersleben, Translated from the German by F. C. Sumner, Ph.D. Introduction by Dr. Esther Loring Richards. New York: Macmillan,* 1933. 150 pp. Price, $1.25.

This unique volume represents a series of essays written by a physician about 100 years ago. The author, as these essays clearly show, in addition to being a physician, was also a philosopher and poet. He was, in a very unusual way, an observer and went far in his interpretation of what he saw. He was not held down, in his efforts to understand the human being, by the limitations of the scientific store of knowledge as it then existed.

Of particular importance to those interested in mental health is the author's recognition of the very significant rôle played by the mind in what were ordinarily considered "physical diseases." He strongly emphasizes the rôle played by the will, emotions, and intellect as causative factors both in sickness and in health. The author's belief in the power of the will to cure almost any physical disease frequently broadens to the extreme. His emphasis on these forces is so strong that one wonders how a man trained so thoroughly in "physical medicine" was able to observe so well and reason so clearly on the psychological aspects of man's health. One cannot fail to admire the author's courage in presenting so forcefully these psychogenic aspects, particularly at a time when they were so little understood, and not recognized as they have been in recent years as very potent forces in both health and disease.

He also gives an important place to religion and the efficacious part that it does or should play in the lives of human beings.

His suggestions for the maintenance of mental health are general in character, but the details as to how his suggestions should be carried out specifically can be filled in, to some extent, from our more recent knowledge, particularly that contributed by the psychoanalytic school. In this connection he discusses at some length the neurotic and particularly the hypochondriac.

This volume will prove interesting and stimulating to those interested in the historical background of mental hygiene. Surprisingly enough, the term "mental hygiene" occurs several times in these essays. The book is a translation of the third German edition of 1910. The author's style is very clear and the translator, without doubt, has contributed in no small way to the literary style that enhances its value to the reader. FRANK J. O'BRIEN

Chronic Nephritis and Lead Poisoning—*By L. J. Jarvis Nye, M.B., Ch.M. Sydney: Angus & Robertson, Ltd.,* 1933. 145 pp. Price, $4.00.

The author claims to have brought to a logical conclusion the recent report of a Federal Inquiry into this subject in Queensland, but which investigation was not finished, apparently due to pressure of vested interests in the lead industry. As far back as 1892, Turner called attention to juvenile nephritis in Brisbane children. The subject was subsequently related to lead poisoning by Gibson in 1904.

The 5 chapters concern themselves with: (1) chronic nephritis in young people in Queensland, (2) lead poison-

ing in childhood in Queensland, (3) the relation between chronic nephritis and lead poisoning, (4) the source of the lead poisoning and its association with the chronic nephritis described, and (5) the problem for preventive medicine.

As a contribution to medical science the publisher claims this is perhaps the most important work to come out of Queensland since Bancroft discovered the adult filarial worm 57 years ago.

Every inhabitant of a wooden house in any part of the world should know something of lead paint and especially its liability to poison children. In the hot, tropical sun, but also in heated periods of the year anywhere, lead paint on exposed surfaces tends to powder very readily so that on walls, veranda railings and fences, it rubs off like chalk. Children contacting same, and especially children given to the habit of nail-biting and thumb-sucking, sum up the hazard.

The conclusions of Allbutt in the lead-arterial tension controversy in 1914 are amply supported in the present report. Lead is a vascular sclerosing agent.

The author blames apathy, "domestic deafness," and "social blindness" for doing nothing about it. "Were a new poison used in the manufacture of paint, the story would be entirely different . . . the extreme care to prevent poisoning from the new compound, ethyl lead, in motor spirit, is an excellent example."

Other factors commonly contributing to juvenile nephritis in Queensland are discussed in detail and dismissed one after the other, as hot sunlight on white-skinned people, the various acute infections, rickets, etc. The death rate from chronic nephritis in young people in Queensland (322 per 100,000 population) is unusual. From 1915 to 1930, there were 349 patients suffering from plumbism admitted to the wards of the Brisbane Children's Hospital. Female dependents, domestics, and male industrials were found to lead nephritis deaths in 9 occupational groupings—especially the first named; also, the poorer classes.

"These children have characteristic appearance with pallid, wizened features, dry and unnourished skin, and stunted physical development." Dwarfism is especially prominent. Cases commonly reach the mid-period of chronic lead poisoning even before investigation. Clinically, the most obvious sign is anemia, but all the other signs and symptoms of lead poisoning occur—the paralysis usually occurring in the legs rather than arms. Fortunately, cases have materially decreased since about 1926, attributed to education, earlier recognition, and the introduction of non-poisonous paints.

It seems paradoxical that commercial firms should take precautions in the care of their employees, whereas there should be such entire neglect of preventive measures against powdery lead paint. Probably it is because child life is outside of the practical gambit of commercial enterprise in which ill-health, sick benefits and compensation occur.

The reviewer would point out the all-too-frequent case reports of lead poisoned babies from paint and enamel on cribs and toys in America.

The present books is replete with tables, graphs and half-tones. It is written in a masterful but only semi-technical style, with conclusions at the end of each chapter and an extensive bibliography. There is no index but the table of contents is clear and the several pages of preface should not be overlooked. E. R. HAYHURST

Nursing History—*By Minnie Goodnow. Philadelphia: Saunders,* 1933. 517 pp. Price, $2.00.

When we received this book for review we looked at it and groaned "Another history of Nursing!" But we

had no sooner read a few pages than our spirits began to be lifted. For here was a history that did not dwell interminably on the details of nursing and medical practice back in ancient and medieval times, but discussed homely and human things to show the trend of the care of the sick up through the ages. For instance, the following subjects are discussed in rapidly moving paragraphs in the first chapter: "Nursing Among Animals," "Care of the Sick Among Savages," "Medicine and Theology," "Sickness and Sin."

For the first time we learned (and to remember) why the Crimean War was fought and who fought in it; what caused Florence Nightingale's long invalidism; when the medical profession first showed interest in nurses' training. We had never read of the Waltham Idea of training nurses before. The accounts of nursing in the Civil, Spanish-American, and World Wars were especially interesting.

The following statement made on page 253 left us in doubt as to what organization the author really meant, but we figured it must be the American Public Health Association: "The National Public Health Association openly proclaims its dependence upon the nurses of the country for the carrying out of its program."

The English is not as polished as it might be, but one gets a fine idea of the significant milestones in the history of nursing, and if we were a pupil nurse again studying history of nursing we would choose this text, for even after a long, strenuous day, we would find it too interesting to go to sleep over.

EVA F. MACDOUGALL

Growing into Manhood—*By Roy E. Dickerson. New York: Association Press,* 1933. 100 pp. Price, $1.00.

A goodly proportion of books dealing with sex hygiene and written for young boys are mawkish and unconvincing, largely, I suppose, because the authors themselves unconsciously share the public's rather shamefaced attitude toward sex. This book by Dickerson is not of that type. It impresses one as a straightforward attempt to talk sensibly and frankly with the boy as an older friend might to a younger one. The author does not falter and become obscure for fear of possibly offending. The presentation is almost uniformly clear-cut and convincing. The main theme is kept from over-emphasis by being made a part of general hygiene.

If one were to criticise at all it might be in the direction of suggesting thar some of the anatomy and physiology may be rather difficult for the younger boys. Again, the section on alcohol and tobacco is not quite so well balanced as the rest of the book; although it must be confessed that a balance is not easily attained on a subject so full of controversial pitfalls, and especially in writing for boys whose heroes may be dads who might have to fall back on the old saw, "Do as I say, not as I do."

This book could be read with profit by many adults as well as by boys.

MERRILL CHAMPION

The Chinese Medical Journal, *Nov.-Dec., 1933, Vol. XLVII, Nos. 11 and 12. Professor Fülleborn Memorial, Parasitology Number. Peiping, China: The Chinese Medical Association.*

This number is a memorial to Professor Friedrich Fülleborn, Director of the Institute for Tropical Diseases at Hamburg, who died September 9, 1933. The editors explain that the necessity of publishing reports which are on the border line between parasitology and pure zoölogy in this journal is due to the fact that special journals on parasitology, microbiology, and pathology have not yet made their appearance in China.

The articles in this issue may be

divided into three groups; the first dealing with histopathology in relation to parasitic infections; the second devoted to infection with the *Microfilaria malayi*, which is here reported for the first time; and the third on Spirochaetoses. The articles show extensive research and careful study. The English is excellent throughout, and one cannot help feeling that the Chinese are far ahead of us in their use of languages. It is hard to imagine a series of articles written by Americans in Chinese which would be understandable to the people who speak and read that language.

The volume is abundantly and excellently illustrated. The Chinese Medical Association is to be congratulated in being represented by such a journal and such a group of investigators.

MAZYCK P. RAVENEL

Diet and the Teeth. Part III. The Effect of Diet on Dental Structure and Disease in Man—*By May Mellanby. Special Report Series, No. 191. London: His Majesty's Stationery Office*, 1934. Price, 5s net.

In this third report of Mrs. Mellanby on vitamin D, a close study has been made of the histologic structure of dental tissues—normal and abnormal. Frequency and distribution of structural abnormalities from a large number of deciduous teeth, extracted and in situ, are noted. Charts have been compiled showing the frequency of caries on different surfaces, defects in relation to time of development, and variations in structure of different types of teeth in the same individual. Finally the association between imperfect structure and caries is shown.

A study of secondary dentine seems to show better structure and calcification when an adequate amount of vitamin D is available. Structure and calcification of secondary dentine is used as an index to the tooth's resistance to decay.

The geographical and racial distribution of caries has been a stumbling block to the vitamin enthusiasts, but Mrs. Mellanby has hit upon breast feeding as the caries immunizing factor common to these dentally favored people. As a matter of fact, this practice is stressed as the most important agent in the prevention of caries. The ground upon which this assumption is based seems a bit shaky. Granting that prolonged breast feeding is practised by some immune races in certain localities, the concomitance of events is hardly acceptable as scientific proof.

Anatomic defects, such as developmental pits and fissures, have always been recognized as the most important predisposing cause of a certain type of caries. If the claims made for correct diet are justified, this chink in the armor of the tooth could be eliminated. Unfortunately this theory does not solve the problem of cavities having their beginning on smooth surfaces.

The author of the preface cites as proving the value of the work the alleged fact that the White House Conference in 1930 accepted the nutritional effect on teeth as being the dominant factor in dental physiology and pathology, the implication being that Mrs. Mellanby's work was accepted without question. No reference was given, but we presume that the author referred to the *Growth and Development of the Child*, Part II. In that we find the statement that Mrs. Mellanby regards vitamin D as a specific factor in producing a perfect dentine. The summary of the chapter devoted to this subject says:

> Vitamin B complex has only an indirect effect on the teeth by affecting the general nutrition of the whole organism. Vitamin C has a profound influence on the tooth pulp and formation of dentine. Vitamin D exerts a calcifying influence on the tooth pulp and the formation of enamel. The different angles of approach in studying the factors influencing teeth are perhaps the cause of apparent confusion in the evidence presented by various investigators. The profound influence

which the vitamins are known to have on the assimilation and utilization of available material is not yet completely worked out. The basis of the peculiarities of various species of experimental animals is only beginning to be appreciated as comparisons are made. Until these considerations are fully understood, the nutritional factors involved in the formation of sound teeth cannot be completely evaluated. It can be said without qualification, however, that nutrition is the most vital of all the influences deserving consideration.

Existing beliefs as to the causes of dental caries, branded the " mental contortion " in the preface, signed by the Medical Research Council, are disposed of in a high-handed manner, reminding the reader that clinical dentistry is apparently not represented in this investigation. C. F. ELZEA

Kampfgaserkrankungen—*(The literature of pathology and treatment of chemical warfare gas diseases)—By Dr. Otto Muntsch. (2nd ed.) Leipzig: George Thieme,* 1934. 110 pp. Price, 9.6 Marks.

It is presumed that during the next period of major warfare, large groups of the civilian population may be subjected to the action of war gases. This prospect has prompted the author to seek the coöperation of Red Cross units throughout the world in the collection and appraisal of all possible information bearing on the prevention and treatment of injuries resulting from exposure to these toxic chemicals. The author states in substance, " with this point in mind the purpose of this book is to offer such knowledge as has been gathered from the different parts of the world as to ways and means for protecting the civilian population against the ravages of war gases."

In the several chapters are discussed such topics as the development of chemical warfare; the statistics derived from the late war; the general toxicology and classification of chemical fighting materials; the chemistry of outstanding war gases; the special pathology and treatment of such war gases as phosgene, chlorpicrine, dichlor - diethyl - sulphide, leursite, arsine, the oxides of nitrogen, carbon monoxide, etc. One of the most attractive features of this book is the number of illustrations in color, presenting the clinical appearance of various types of affections following war gas exposure. In addition various illustrations in black and white and in color, present the results of animal experimentation, the appearance of various organs at autopsy, etc.

At this very time, this book holds only limited value in the practice of medicine. Against that day when thousands of persons may be attacked through the medium of gas warfare, this book contains all of the substantial information available to the best known means of preventing the malaction of war gases, the diagnostic treatment of these conditions when produced, together with extensive discussion as to the prospective effects following in the wake of acute damage after exposure to gas warfare materials.

CAREY P. MCCORD

Municipal Year Book—*By Clarence E. Ridley and Orin F. Nolting. Chicago: International City Manager's Assn.,* 1934. 256 pp. Price, $4.00.

This is the first edition of a year book for American Cities, and purports to be " an authoritative resumé of activities and statistical data of American Cities." Studies on Municipal Government in its different phases are being made on a wide scale due to a desire to discover what are the indispensable functions in city government and what are the most effective methods of administration and, more particularly, at the present time to find out how economies can be effected.

This book will be a decided help to all engaged in such studies, and valu-

able generally as a reference book. A directory may soon get out of date, but an up-to-date one, as the year book apparently is, is a convenience and a great time saver.

The concise articles by experts in different fields of municipal activity setting forth the outstanding changes which have taken place during the year are informative and especially valuable by busy workers. The brief review of the public health field is prepared by Dr. W. F. Walker, formerly Field Director for the Committee of Administrative Practice of the American Public Health Association and now with the Commonwealth Fund. His wide acquaintance with health organization and public health activities enables him to give trustworthy opinions as to the main trends in public health.

There is appended to the *Year Book* a selected list of recent books and periodicals which is most useful as a reference list. JAMES WALLACE

BOOKS RECEIVED

MATERNAL MORTALITY AND MORBIDITY. A Study of Their Problems. By J. M. Munro Kerr. Baltimore: William Wood, 1933. 382 pp. Price, $8.25.

YOU MUST RELAX. By Edmund Jacobson. New York: McGraw-Hill, 1934. 201 pp. Price, $1.50.

SURVEY OF PUBLIC HEALTH NURSING. Administration and Practice. By the National Organization for Public Health Nursing. New York: Commonwealth, 1934. 262 pp. Price, $2.00.

BRUCELLA INFECTIONS IN ANIMALS AND MAN. Methods of Laboratory Diagnosis. By I. Forest Huddleson. New York: Commonwealth, 1934. 108 pp. Price, $2.25.

JAPANESE MEDICINE. By Y. Fujikawa. Translated by John Ruhrah. New York: Hoeber, 1934. 114 pp. Price, $1.50.

YOUR GERMS AND MINE. The Story of Good and Bad Microbes. By Berl ben Meyr. New York: Doubleday, 1934. 389 pp. Price, $2.75.

INTRODUCTION TO FOOD BACTERIOLOGY. By Andrew Moldavan. Lancaster: Science Press Printing Co., 1934. 172 pp.

THE STORY OF THE NATIONAL LEAGUE OF NURSING EDUCATION. By Helen W. Munson. Philadelphia: Saunders, 1934. 80 pp. Price, $1.00.

THE MUNICIPAL YEAR BOOK 1934. An Authoritative Resumé of Activities and Statistical Data of American Cities. Editors—Clarence E. Ridley and Orin F. Nolting. Chicago: International City Managers' Association, 1934. 256 pp. Price, $4.00.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

Improving the Britisher's Health—Successes and accruing benefits of the British system of health insurance are recounted by a leader of the British Medical Association. The paper should be read by everyone interested in preventive medicine.

BRACKENBURY, H. B. Health Insurance in England. New Eng. J. Med. 210, 16:851 (Apr. 19), 1934.

Investigating Tuberculosis Contacts—The examination of family contacts, as a tuberculosis case finding method, should be confined to a more highly selected group of families, made after a detailed clinical study of the primary case. Otherwise, the method may prove a relatively poor case finding procedure.

DOWNES, J. Tuberculosis Case Finding in the Red Hook Area of New York City. Milbank Quart. 12, 2:134 (Apr.), 1934.

Sewage Treatment—Briefly reviewed to make a useful and informing summary of the latest methods of sewage disposal, this paper will give the sanitarian the knowledge he should have to be up-to-date.

EDDY, H. P. Recent Developments in Sewage Treatment. Sewage Works J. 6, 2:262 (Mar.), 1934.

Health Instruction Reduced to Its Rudiments—This experience in social hygiene education for Negroes in the City of New Orleans has much in it that can be adapted to other health promotion projects.

EDWARDS, M. S. Popular Health Education in Simplest Terms. J. Social Hyg. 20, 4:177 (Apr.), 1934.

Health Facts to Be Unlearned—In this long list of 23 health "beliefs," some of which are taught and some handed down with the family china, you are almost sure to find a few which will affront your own pet delusions. This paper should be required reading for all sanitarians and would-be health teachers.

FORSYTHE, W. E. Things to Forget in Health Teaching. Health and Physical Education. 5, 3:18 (Mar.), 1934.

Stability of Brucella Strains—Passage of bovine strains of Brucella through several series of hogs caused no determinable change from the bovine to the porcine type.

GILMAN, H. L., *et al.* Passage of Bovine Brucella Through Swine. J. Infect. Dis. 54, 2:171 (Mar.-Apr.), 1934.

Hopeful Cancer Results—The percentage of cures in cancer of the breast has improved (in Massachusetts). Further reduction in mortality depends chiefly upon public education and the prompt and proper treatment of any abnormality of the breast.

GREENOUGH, R. B., *et al.* Cancer of the Breast; End Results (Two Papers). New Eng. J. Med. 210, 16:831 (Apr. 19), 1934.

Parrots or Parrot Fever—We know little more about the intrinsic nature of psittacosis today than we did 2 years ago; the fight is not yet won; and efforts to suppress the disease meet with constant opposition and are attended with many difficulties: so concludes this excellent survey of the whole subject.

HOGE, V. M. Psittacosis in the United States. Pub. Health Rep. 49, 14:451 (Apr. 6), 1934.

Better Swimming—Improvements in swimming pool management are set forth in sufficient detail to make the matter understandable by all sanitarians.

HYATT, C. A. Swimming Pool Sanitation. Municipal Sanitation. 5, 4:116 (Apr.), 1934.

Importance of Child Care—In England improvement in death rates of various age groups depends upon the date of birth. This finding is consistent with the hypothesis that the important factor in health during the whole life is the environment up to age 15, and that improved conditions in later years have little effect.

KERMACK, W. O., *et al.* Death Rates in Great Britain and Sweden. Lancet. 226, 5770:698 (Mar. 31), 1934.

The Future in Health Administration—The health service of tomorrow will conform inevitably to the governmental framework whatever that may be. If the previous political philosophy prevails, the traditional forms of health administration will continue, improved it is to be hoped. If the current economic changes move to the left, we shall see old age, unemployment, sickness and other schemes of social insurance. Whatever happens, we shall have little to say about it and must conform.

PARRAN, T. Health Services of Tomorrow. Pub. Health Rep. 49, 15:477 (Apr. 13), 1934.

Health of the Recent-Poor—"Comparisons among various groups of the surveyed population indicate that the 'depression poor" obtained more free care of all kinds, less total physician's care, more total hospital care, and more care by a visiting nurse than was received by their neighbors who were in similar economic circumstances in 1929 but did not suffer material loss of income during the depression.

PERROTT, G. ST. J., *et al.* Medical Care During the Depression. Milbank Quart. 12, 2:99 (Apr.), 1934.

How Many Public Health Nurses Are Needed?—Unfortunately you will not find an answer to the question in this paper. You will find, however, suggestions about ways in which an answer may sometime be reached.

RANDALL, M. G. How Many Public Health Nurses Are Needed? Milbank Quart. 12, 2:160 (Apr.), 1934.

More Babies for the New-Poor—"Low social status, unemployment, and low income in 1932 went hand in hand with a high illness rate and increased malnutrition among children. It was in these same groups of families that a high birth rate prevailed . . . in families which could least afford, from any point of view, to assume this added responsibility."

SYDENSTRICKER, E. and PERROTT, G. ST. J. Sickness, Unemployment and Differential Fertility. Milbank Quart. 12, 2:126 (Apr.), 1934.

Tubercle Filtrates—It seems that the Berkefeld filtrate of tuberculosis cultures injected into animals produces certain atypical non-progressive infections. This convinced some research workers that they were dealing with an ultra-virus. These authors added to the same filtrate a few tubercle bacilli which produced exactly the same condition. Hence, they infer that it is necessary to assume, instead of an ultra-virus, that a leaky filter may have been at the bottom of the phenomenon.

WALKER, E. L. and SWEENEY, M. A. Microscopic Demonstrations of Acid-Fast Bacilli in Tuberculosis Filtrates. J. Infect. Dis. 54, 2:183 (Mar.-Apr.), 1934.

Predisposition to Cancer and Insanity—There may be some consolation in learning that if you are marked for insanity, there is less likelihood that you will develop cancer than if you are destined to remain outside the asylum, for cancer is definitely less frequent among the insane than the general population.

WARREN, S. and CANAVAN, M. M. Frequency of Cancer in the Insane. New Eng. J. Med. 210, 14:739 (Apr. 5), 1934.

ASSOCIATION NEWS

AN OPEN LETTER TO THE MEMBERSHIP FROM THE PRESIDENT OF THE ASSOCIATION

DEAR MEMBER:

Now is the time to determine your own Pasadena plans. The annual offering of the science and art, of theory and practice, of philosophy and news in preventive medicine, is ready for your consideration.

Exchange of useful facts, diversity and discussion of opinion, agreement on policies and methods are best accomplished face to face and eye to eye.

Read the provisional program (to be published in the July issue), and be persuaded of the compelling worth of its multitudinous topics, and be tempted by the privilege of asking and answering questions among your professional peers, to attend the Pasadena meeting of our Association.

All Members and Fellows west of the Mississippi will find this their nearest and dearest opportunity.

Distance will add enchantment for those who by accident of birth and occupation are called Easterners. To these in particular it should be said that travel to the coast never cost less than it will this summer, and no previous western meeting of the Association has been sponsored by so numerous, so well organized, or so hospitable a group of regional hosts as welcome us now to California.

General meetings will emphasize the social and international problems of American public health, current experiments in public service, and the increasingly intimate dependence of our security upon health in the other continents and nations.

As is often the case, laboratory leaders offer us progress and promise in many lines. Meyer of the Hooper Laboratories reveals the enigma of mussel poisoning; H. W. Hill, the veteran sanitarian of Vancouver, brings wisdom on milk; the Smiths tell of fluorine, the new criminal in water supplies; and Sippy brings us to time with new light on dysentery; Pearl Kendrick brings the new pertussis technic from Grand Rapids; and Sara Branham advances information on meningitis.

Official commissions in Chicago, and A.M.A. meetings in Cleveland, and many individual inquiries by correspondence and personal visit have left many questions on amebic dysentery to be answered by national authorities at our symposium.

New Mexico, San Francisco, and Minneapolis will make additions to our knowledge of syphilis control.

School physicians will be drawn by their confidence in the ability of Shepard, Pratt, Gudakunst, and others, to give them fact and method to raise the quality of child health.

Young of Lansing on immunity to diphtheria; Kellogg of Berkeley on bacillary dysentery; Bonynge of Los Angeles on streptococcus epidemicus; Meyer of San Francisco on psittacosis, compete with other well known authors for attention in diagnostic and preventive procedures.

Tuesday morning will, in fact, be a General Session because of the universal professional and public interest in the program on Serving the Public for Health. This will doubtless be the

Health Officers' banner event, planned in a spirit of competition in well-doing, not as a controversy between partisans.

Australia, Tennessee, and New York City will lay their experience at the feet of the health officers in other section meetings.

Occupational hygiene interests will center about the basic industries of oil, smelting, and lumbering, with original reports from Legge and others.

With Alonzo Taylor, Guy Millberry and Carl Alsberg dealing with nutrition, there will be crowded halls and eager listeners.

Child health has drawn its speakers from the Atlantic Coast to Hawaii—city and county official and nonofficial agencies.

For the epidemiologist in addition to the perennial problems of typhoid, syphilis, diphtheria, and scarlet fever from east and west, we have psittacosis, particularly featured by Californians.

The Section Secretaries and the Program Committee offer a balanced feast of reason to whet our intellectual appetites. Come and share it and contribute as critical listeners and by your constructive discussions.

Come from near and far, come for your pleasure and for the profit of all of us.

Show your confidence in recovery by investing in this annual pilgrimage for public health.

Cordially yours,

HAVEN EMERSON, M.D., *President*

P.S. You will receive additional dividends on your investment in the form of good companionship and valuable professional contacts if you travel to Pasadena on the A.P.H.A. Special Train. If you have not received an invitation to join it, by all means inform the Association office in New York.

MAKE RESERVATIONS EARLY

IT will be necessary this year to use two hotels in Pasadena and the Civic Auditorium for section and general meetings. Since all the events of the Annual Meeting cannot be held under one roof and there will be considerable passage between the hotels, delegates will probably indulge their tastes this year so far as their personal headquarters are concerned more generally than at previous meetings when, for the most part, convention activities were centered in one hotel.

The principal hotels are listed below with their rates. The Vista del Arroyo, the Huntington and the Maryland are the best.

Registration and information, commercial exhibits, and certain section meetings will be held in the Maryland. The Huntington, too, will have some sessions and some luncheons and dinners. The Maryland is in the center of the city; the Huntington is a 10 minute ride from the downtown area, set in its own beautiful 28 acre park. The Local Committee will provide transportation between the Auditorium and the Huntington, and between the Maryland and the Huntington, so that those wishing to surround themselves with unusual loveliness and comfort, such as the Huntington provides, may do so without sacrificing time and convenience.

The Maryland, too, is spacious and comfortable, with many attractive bungalows, surrounded with flowers and lawns, available for delegates in addition to rooms in the main building.

The best accommodations in both the headquarters hotels are double rooms. The number of single rooms is limited, and delegates are urged to make immediate reservations for them. Doubling up is recommended, in so far as possible.

PASADENA HOTEL RATES

The Maryland Hotel and Bungalows

(Capacity, 375 Rooms)

Single room, with bath, $3.50–$4.00
Single room, without bath, $2.50
Double room, with bath, $5.00
Double room, without bath, $4.00
Bungalow rooms at same prices as Main Building rooms, $4.00 additional for living room.

The bungalows vary in size, and consist of a living room and anywhere from 2 to 5 bedrooms, either with private bath or connecting bath, and these would make ideal arrangements for groups that would be congenial together.

Hotel Vista del Arroyo and Bungalows

(Capacity, 400 Rooms)

Single room, with bath, $4.50
Double room, with bath, $6.00–$7.50

The Huntington Hotel and Bungalows

(Capacity, 292 Rooms)

Single room, with bath, $4.50
Double room, with bath, $6.00–$7.50
2 Single rooms, with bath, $7.00
Double and single rooms, with bath, $9.00
2 Double rooms, with bath, $10.00

Hotel Green

(Capacity, 167 Rooms)

Single room, with bath, $2.50
Double room, with bath, $3.00–$3.50
2 Single rooms, with bath, $5.00–$6.00

Hotel Constance

(Capacity, 164 Rooms)

Single room, with bath, $2.00
Double room, with bath, $3.00

.....*(Cut off on this line and mail to the hotel of your choice)*.....

HOTEL RESERVATION BLANK FOR PASADENA MEETING

AMERICAN PUBLIC HEALTH ASSOCIATION

50 WEST 50TH STREET, NEW YORK, N. Y.

SEPTEMBER 3–6, 1934

To .....
(Name of Hotel)

Please reserve for me .....rooms for.....persons for the A.P.H.A. Meeting.

Single room..... Double room.....

Bungalow for ..... persons

Maximum rate per day for room $.....Minimum rate per day for room $.....

I expect to arrive..... If date of arrival is changed I will notify you at least 24 hours in advance.

Please acknowledge this reservation.

Name .....

Street address .....

City..... State.....

RAILROAD RATES TO PASADENA

The American Public Health Association applied this year, as usual, for reduced railroad rates on the convention basis of fare and one-third for the round trip to the Annual Meeting. The passenger associations have advised that summer excursion rates are more favorable and are in effect in most sections of the country. We are instructed to advise members to confer with their home ticket agents, who will be able to give them detailed information regarding fares, routes, and Pullman rates.

This year you require no identification certificate in making your travel arrangements to Pasadena, since summer excursion fares are open to the general public.

The following lists 45-day, round trip, summer tourist fares to Pasadena and Los Angeles from principal points. Pullman charges are not included.

RAILROAD RATES FROM VARIOUS CENTERS TO PASADENA, CALIF.

45-Day, Round Trip Summer Tourist Fare to Los Angeles

From		*From*	
Atlanta	$100.65	Nashville	93.15
Baltimore	120.75	New Orleans	85.15 (1)
Boston	133.98	New York	126.90
Buffalo	109.55	Omaha	72.00 (1)
Chicago	86.00 (1)	Philadelphia	122.85
Cincinnati	97.00	Pittsburgh	107.10
Cleveland	101.35	Portland (Ore.)	45.95 (2)
Dallas	70.45 (1)	Salt Lake City	30.85 (2)
Denver	57.50 (1)	San Francisco	19.50 (2)
Detroit	98.30	Seattle	53.30 (2)
Duluth	86.00 (1)	St. Louis	81.50 (1)
Fort Worth	70.45 (1)	Washington, D. C.	120.75
Indianapolis	92.60	Montreal	122.55
Jacksonville	112.90	Halifax	149.20
Kansas City	72.00 (1)	Ottawa	121.05
Louisville	94.20	Quebec	129.60
Memphis	85.15 (1)	Toronto	108.15
Milwaukee	86.00 (1)		
Minneapolis	86.00 (1)		

(1) Limit October 31
(2) Limit 10 days

INTRODUCING THE CHAIRMAN OF THE LOCAL COMMITTEE ON ARRANGEMENTS FOR THE PASADENA ANNUAL MEETING

DR. J. D. DUNSHEE

WHILE the members of the Association know Dr. Dunshee's name very well for his work as Health Officer of Pasadena, and that he has recently been appointed Director of Public Health for the State of California, they will be interested to know the roads he has traveled to bring him to his present post. If the following biographical material appears sketchy, his friends will know it is because he has insisted upon the removal of every adjective and every phrase that would seem to carry with it a suggestion of commendation.

Dr. Dunshee came to California in 1920. During that winter he conducted

a weekly conference at the *Los Angeles Evening Express* for children of preschool age.

Following this, he was appointed Director of Child Welfare of the Los Angeles City Health Department, a position which he held for 5 years. He resigned from the Health Department and served as Executive Secretary for the Southern California Society for Mental Hygiene. He has been on the Board of Directors of this Society for the past 10 years, serving as President for 1 year. It is under this Board that the Child Guidance Clinic of Los Angeles and Pasadena is operated.

Dr. Dunshee organized the Normandy Avenue Nursery School operating under the Board of Education of the City of Los Angeles, and has been active in all movements having to do with child welfare.

While in Los Angeles, Dr. Dunshee was a member of the Southwestern Pediatrics Society, and for 2 years was on the Pediatrics Staff of the Los Angeles General Hospital.

Early in 1929 Dr. Dunshee was appointed Health Officer of Pasadena. For the past 5 years, since its inauguration, Pasadena has been one of the honor cities in the Inter-Chamber Health Conservation Contest, in cities of 50,000 to 100,000 population. For the year just completed, Pasadena was first among the honor cities in its population class. It has been through Dr. Dunshee's efforts that health work in Pasadena has been organized in such a way as to receive this recognition. Dr. Dunshee inaugurated the Health Section of the Council of Social Agencies in Pasadena which has met monthly and has worked closely with the Health Department on health programs. The outstanding contribution which he made to health work in Pasadena was securing the coöperation and support of all health agencies in the city. He was also sent by the City of Pasadena as a delegate to the White House Conference on Child Health and Protection in Washington, D. C.

On March 17, 1934, Dr. Dunshee was appointed Director of the California State Department of Health, an appointment welcomed by health workers of the entire state. His new work has in no way detracted from his interest in the Pasadena Annual Meeting. As *Chairman* of the Local Committee, his energies and enthusiam are unbounded. Dr. Dunshee is a Fellow of the Association.

ADDITION TO PASADENA LOCAL COMMITTEE

Dr. J. D. Dunshee, *Chairman* of the Pasadena Local Committee, announces that Dudley M. Dorman, of Los Angeles, has accepted the chairmanship of the Finance Committee.

NEW MEMBERS

The following list includes applicants who have been approved for membership in the A.P.H.A. by the Sub-Committee on Eligibility. These new members have requested affiliation with the sections indicated, and action by the Section Councils will follow.

Health Officers Section

James A. Dumas, M.D., 470 Broadway, Lynn, Mass., Public Health Commissioner

Herbert C. Hageman, M.D., 14 Fremont St., Gloversville, N. Y. (Assoc.)

William J. Maby, M.D., 515 Park Ave., Mechanicville, N. Y. (Assoc.)

Clyde R. Newell, M.S., 50 Hudson St., Hackensack, N. J., State District Health Officer

Irvin B. Trapp, M.D., Box 386, New Albany, Miss., Director, Union County Health Dept.

Frank D. Ursone, M.D., Norfolk, Conn., Health Officer

William D. Weis, M.D., Crown Point, Ind., County Health Commissioner

Lee J. Whittles, M.D., 351 Main St., Glastonbury, Conn., Health Officer

Laboratory Section

Gordon E. Davis, Sc.D., U. S. Public Health Service, Hamilton, Mont., Bacteriologist

Dr. Karl J. Demeter, Weihenstephan, Freisig, Bavaria, Head, Bacteriology Dept., South German Research Institute of Dairy Science (Assoc.)

John H. Dingle, Sc.D., Upjohn Co., Kalamazoo, Mich., Bacteriologist

Mary A. Lynch, 4812 Fifth Ave., Los Angeles, Calif., Laboratory Assistant, City Dept. of Water & Power

Irwin M. Walker, M.D., Niagara Falls Memorial Hospital, Niagara Falls, N. Y., Director of Hospital Laboratory

Vital Statistics Section

Herbert H. Marks, A.B., 1 Madison Ave., New York, N. Y., Statistician, Met. Life Ins. Co.

Francis D. Rhoads, M.A., 1504 Alaska Bldg., Seattle, Wash., State Registrar

Mortimer Spiegelman, M.E., 163 Eastern Parkway, Brooklyn, N. Y., Research Clerk, Met. Life Ins. Co.

Victoria M. Trasko, 326 S. Main St., Wilkes-Barre, Pa., Statistician, Board of Health

Public Health Engineering Section

Howard R. Fullerton, C.E., State Dept. of Public Health, Nashville, Tenn., Assistant State Director of Malaria Control.

William J. Lenz, M.D., Ph.D., 1346 Starks Bldg., Louisville, Ky., Consulting Chemist

Edgar B. Peebles, 1814 Cephas Ave., Nashville, Tenn., Dairy Inspector (previously Sanitary Officer)

Felix Seligman, Water & Light Dept., Duluth, Minn., Manager

Industrial Hygiene Section

Irving Gray, M.D., 41 Eastern Parkway, Brooklyn, N. Y., Member, Public Health Committee, Kings County Medical Society

Carroll Lockard, M.D., 10 South St., Baltimore, Md., Medical Director, Maryland Life Insurance Company of Baltimore

Food and Nutrition Section

Gordon W. Molyneux, 42 Barker Ave., White Plains, N. Y., Milk Inspector, Westchester County Dept. of Health

J. Y. Phelan, 705–49 Ave., N., Nashville, Tenn., Sanitary Officer

Child Hygiene Section

Vaughn S. Blanchard, A.B., 11526 Linwood Ave., Detroit, Mich., Director, Health and Physical Education, City Public Schools

Charles E. Rink, M.D., 27 South 9th St., Indiana, Pa., Medical Inspector, Public Schools

Elma Rood, M.A., State Board of Health, Louisville, Ky., Assistant Director, Public Health Education

Public Health Education Section

John R. Heller, Jr., M.D., State Dept. of Health, Nashville, Tenn., Consultant, Venereal Disease Control

Alexander V. Morgenstern, 415 Central Park West, New York, N. Y. (Assoc.)

Ivan L. Ressler, E. I. duPont de Nemours & Co., Niagara Falls, N. Y., Consultant on Fumigation Problems, R. & H. Chemicals Dept.

Theodore R. Rhea, C.P.H., Dept. of Public Instruction, Honolulu, T. H., Director of Health Education

George Schwartz, M.D., 2487 Davidson Ave., Bronx, N. Y., Chairman, Public Health Committee, Lions Club

Kate H. Trawick, 2501 Ashwood, Nashville, Tenn., Associate in School Health Education, State Dept. of Public Health

Public Health Nursing Section

Grace Beatty, R.N., Greeneville, Tenn., County Nurse

Iter D. Boyette, R.N., P.H.N., 3197 Kinross Ave., Nashville, Tenn., Field Nurse, Davidson County Health Dept.

Dollie Burkitt, 4503 Charollette Ave., Nashville, Tenn., Field Nurse

Helen J. Greer, R.N., Dept. of Public Health, Franklin, Tenn., Supervising Nurse

Barbara L. Klassy, R.N., Franklin, Tenn., Tuberculosis Clinic and Field Service Nurse

Shirley C. Titus, A.M., R.N., School of Nursing, Vanderbilt University, Nashville, Tenn., Dean and Professor of Nursing Education

Estelle West, R.N., 1012 Mayner Ave., Nashville, Tenn., Public Health Nurse

Epidemiology Section

George T. Blydenburgh, M.D., C.P.H., Ohio Wesleyan University, Delaware, O., Director, Student Health

Bruce H. Douglas, M.D., Herman Kiefer Hospital, Detroit, Mich., Tuberculosis Controller, Dept. of Health

Unaffiliated

Ralph P. Bridgman, 60 E. 42 St., New York, N. Y., Director, National Council of Parent Education

Will G. Sheffer, D.D.S., Medico Dental Bldg., San Jose, Calif. (Assoc.)

William F. Stein, M.D., P. O. Box 708, Fresno, Calif., County Health Officer

CLOSING DATE FOR ACCEPTING APPLICATIONS FOR FELLOWSHIP

ACTIVE members who wish to make application for Fellowship in the American Public Health Association, are hereby notified that their applications must be submitted to the Committee on Fellowship and Membership not later than July 1, 1934, if final action is to be taken by the Governing Council at the Pasadena Annual Meeting in September.

For the benefit of the newer members of the Association, the two prerequisites for applying for Fellowship are repeated here. These are (1) the applicant must have been an active member of the A.P.H.A. for at least 2 years, and (2) he or she must be at least 30 years of age. The professional qualifications which are essential are given in the By-laws, which appear on page 13 in the *Year Book* issued as a supplement to the February *Journal*.

NEWS FROM THE FIELD

ASSOCIATION OF WOMEN IN PUBLIC HEALTH

ADA E. SCHWEITZER, M.D., F.A.P.H.A., Indianapolis, Ind., resigned as President of the Association of Women in Public Health, effective May 1, 1934.

The former Vice-President, Ellen Stadtmuller, M.D., member A.P.H.A., San Francisco, Calif., is now President and will plan the Association program for the convention to be held at Pasadena during the session of the A.P.H.A.

The Secretary is Pauline Brooks, F.A.P.H.A., Williamson, School Health Bureau, Welfare Division, Metropolitan Life Insurance Co., New York, N. Y.

The Treasurer is Alice C. Bagley, member A.P.H.A., Assistant Superintendent of Nursing, Metropolitan Life Insurance Co., San Francisco, Calif.

Mary R. Lakeman, M.D., F. A.P.H.A., Chairman of the Health Knowmeter Co. of the Association of Women in Public Health, announces that this most valuable card index of health information is ready for distribution. Questions concerning contents and cost should be addressed to her at 100 Nashua St., Boston, Mass.

CONFERENCE OF STATE AND PROVINCIAL HEALTH AUTHORITIES AND U.S.P.H.S.

THE U. S. Public Health Service joins the Conference of State and Provincial Health Authorities of North America in extending to you a cordial invitation to attend and take part in the Annual Conference of the two organizations, to be held in the Public Health Service Building, Washington, D. C., June 5–8, 1934.

CALIFORNIA HEALTH DEPARTMENTS MERGE

THE San Leandro Health Department and the Alameda County Health Department, of California, have combined and will function under the direction of Dr. Ira O. Church, Health Officer, of Alameda County, member A.P.H.A. Dr. Luther Michael retired as Health Officer of San Leandro, having held the position many years.

NEW CANCER CLINIC

THE establishment of the Atlanta Cancer Clinic, for pay patients,

has been authorized, with headquarters in the Medical Building of the Georgia Baptist Hospital, Atlanta, Ga. A diagnostic fee commensurate with the patient's circumstances will be charged, the funds to be used for the maintenance of the clinic. The Clinic will have available 370 mg. of radium.

Dr. James L. Campbell has been named Director of the Clinic.

SUMMER CAMP FOR MILWAUKEE GIRLS

PHI Delta Pi, National Professional Physical Education Fraternity for Women, will establish a Camp for Underprivileged Children at Camp Brosius, Elkhart Lake, Wis., in July. The campers are to be 10 and 11 year old girls who live in the congested districts of Milwaukee. They are to be recommended by social agencies to the advisory committee of the Summer Outing Fund.

Martha A. Gable, Director of Physical Education in Junior High Schools in Philadelphia, is to be Camp Director. Miss Hazel C. Orr, Director of Physical Education in Woodward High School of Cincinnati, is Grand President. Phi Delta Pi is a member of the Women's Professional Panhellenic Association.

NEW PSYCHIATRIC CLINIC

THROUGH a recent gift of $80,000 from the Rockefeller Foundation, the establishment and maintenance of a psychiatric unit at the Massachusetts General Hospital, Boston, Mass., is now in prospect.

Of this sum, $42,000 will go to Harvard Medical School for psychiatric work and the remainder will be available for the establishment of the clinic, the construction of which will begin in September. Dr. Stanley Cobb, Bullard Professor of Neuropathology at Harvard, will direct the project. Close coöperation will be established with McLean Hospital, of Belmont, Mass., which has recently been reorganized, for the treatment of the more difficult cases.

HEBREW UNIVERSITY PLANS CANCER RESEARCH

A TRUST fund of approximately $200,000 (£39,000) has been created by anonymous donors to be used over a period of 10 years for the establishment and maintenance of a department at the Hebrew University in Jerusalem for research into the causes and cure of cancer.

Part of the available funds will be used for the erection and adequate equipment of special laboratories.

OREGON STATE BOARD OF HEALTH ELECTS

OFFICERS of the Oregon State Board of Health recently elected in Portland are:

Dr. Albert Mount, President; Dr. Joseph P. Brennan, Vice-President; and Frederick D. Stricker, F.A.P.H.A., Secretary.

FOR GRADUATE NURSES

FOR nurses interested in studying the behavior of and having practical experience in working with young children, a course is being given at the Child Development Institute of Teachers College, Columbia University, New York, from June 11 to July 6. Intensive experience with well children will be provided under supervision in the nursery school and play group and regular classes and individual conferences will be held to analyze and study the behavior of the children as well as the technics of guidance used in working with them.

DRS. RIDDLE AND MC COLLUM RECEIVE MEDALS

THE American Institute awarded gold medals to Dr. Oscar Riddle, member A.P.H.A., and Dr. E. V. McCollum, F.A.P.H.A., at a meeting

on May 3 at the American Museum of Natural History, New York, in recognition of their respective achievements in the fields of research on the glands of internal secretion and of nutrition.

DIPHTHERIA IMMUNIZATION IN DALLAS

DUE to the fact that Dallas has been shown to have the highest diphtheria morbidity and mortality of any city in the United States, the Department of School Health Work recently undertook a survey of immunization in the public schools. The survey has been conducted in 46 elementary schools, in which 27,094 children were enrolled.

NEW ARKANSAS STATE BOARD OFFICERS

AT a recent meeting of the Arkansas State Board of Health, Dr. Joseph G. Gladden was named President; Dr. Thomas Wilson, Vice-President; and Dr. William B. Grayson, member A.P.H.A., Secretary.

UNIVERSITY OF MINNESOTA RECEIVES GIFT

THE University of Minnesota recently received a gift of $500,000 for the advancement of medical research from Dr. William J. Mayo, and Charles H. Mayo, member A.P.H.A., of Rochester, Minn.

PERSONALS

HAVEN EMERSON, M.D., Professor of Public Health Practice at Columbia University College of Physicians and Surgeons, President A.P.H.A., and DR. FRANK L. BABBOTT, JR., President of Long Island Medical College of Brooklyn, N. Y., were appointed members of the Board of Health of New York City by Mayor LaGuardia. Dr. Emerson was Health Commissioner of New York from 1915 to 1918. Dr. Emerson will make a survey of tuberculosis in the city at the request of the Department of Hospitals.

DR. EDWARD H. SKINNER, member A.P.H.A., has been appointed Chairman of the Public Health and Welfare Committee of the Chamber of Commerce of Kansas City, to succeed Dr. George E. Bellows, who has resigned after 12 years' service.

DR. SAMUEL J. ELLISON, member A.P.H.A., who had been Health Commissioner of Adams County 14 years, is succeeded by Dr. Hazel L. Sproull, of West Union, Ohio.

DR. FRANK R. DEW, member A.P.H.A., of Barnesville, has retired from the office of Health Officer of Belmont County, which he occupied for 11 years.

DR. CHARLES E. THOMPSON, of Mingo, Ohio, has been appointed Health Officer of Champaign County after a lapse of several months in which the county was without a health head because of lack of funds.

DR. FRANCIS M. TEEPLE, of Fremont, Ohio, has been named Health Officer of Sandusky County.

DR. ARNOLD O. ABRAHAM, of McConnelsville, Ohio, succeeds Dr. James B. Naylor as Health Officer of Morgan County.

DR. WILLIAM L. FAUL, of Russellville, succeeds Dr. John G. Anderson, of Fayetteville, as Health Officer of Brown County, Ohio.

DR. FAY E. GAITHER, of Lenora, has been appointed Health Officer of Norton County, Tex.

DR. EBER REEVES has been named Health Officer of Decatur County, Kans.

DR. JOHN I. MITCHELL, of Salem, Ind., has been made Health Officer for Washington County, succeeding the late Samuel A. Roberts.

DR. DARREL L. EVANS has been named Health Officer of Riley County,

Kans., succeeding Dr. John R. Mathews, of Manhattan, who resigned to engage in private practice in Glenwood Springs, Colo., after holding the position since 1923.

DR. BASIL B. BRIM has been named Health Commissioner of Toledo, Ohio, now a part-time office.

JOHN L. JONES, M.D., of Louisville, Ky., was appointed recently Assistant Utah Health Commissioner and State Epidemiologist. He assumed his new duties in his native state on April 20 for the first time. The post of epidemiologist has been vacant since 1929 due to lack of funds. The added expense will be shared by the state and the International Health Division of the Rockefeller Foundation.

DEATH

HARRY L. ABRAMSON, M.D., member A.P.H.A., and Director of the Bureau of Laboratories of the New Brunswick Department of Health at Saint John, N. B., since 1918, died in New York on April 17. Dr. Abramson, whose home was in St. Joseph, Mo., was associated with Dr. William H. Park in the Research Laboratories of the City of New York before he joined the New Brunswick Department of Health.

CONFERENCES

June 1–2, Annual Conference, New England Health Education Association, Massachusetts Institute of Technology, Cambridge, Mass.

June 5–6, 7th Annual Meeting, Arizona Public Health Association, Prescott, Ariz.

June 4–8, Annual Convention of the American Water Works Association, Hotel Commodore, New York, N. Y.

June 5–8, Annual Conference of U. S. Public Health Service and Conference of State and Provincial Health Authorities of North America, Public Health Service Building, Washington, D. C.

June 11–13, Twenty-third Annual Meeting of the Canadian Public Health Association, Montreal, Que., Canada.

June 13–16, 13th Annual Convention of the American Physiotherapy Association, Cleveland, Ohio.

June 14–15, Annual Convention, Central Atlantic States Association of Dairy, Food and Drug Officials, Baltimore.

June 18–23, Summer Meeting of the Council of the American Association for the Advancement of Science and Associated Societies, Berkeley, Calif.

June 25–29, 7th Annual Meeting of the American Home Economics Association, New York, N. Y.

June 26–28, Annual Conference of Health Officers and Public Health Nurses, Saratoga Springs, N. Y.

June 26–28, American Association of School Physicians, Saratoga Springs, N. Y.

June 27–29, 8th Annual Conference of the Pennsylvania Sewage Works Association, State College, Pa.

July 9–14, Health Congress, to be held under auspices of the Royal Sanitary Institute, Bristol, England

Aug. 6–10, Annual Meeting of the American Dental Association, St. Paul, Minn.

Sept. 3–6, 63rd Annual Meeting, American Public Health Association, Pasadena, Calif.; headquarters, Huntington Hotel and Maryland Hotel.

Sept. 4–6, 9th Conference of the International Union Against Tuberculosis, Warsaw, Poland.

Oct. 15–18, 17th Annual Meeting of the American Dietetic Association, Washington, D. C.

Nov. 13–16, Southern Medical Association, San Antonio, Tex.

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